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<p>(21) International Application Number: <b>PCT/US99/30270</b></p> <p>(22) International Filing Date: 17 December 1999 (17.12.99)</p> <p>(30) Priority Data:</p> <table> <tr><td>09/215,681</td><td>17 December 1998 (17.12.98)</td><td>US</td></tr> <tr><td>09/216,003</td><td>17 December 1998 (17.12.98)</td><td>US</td></tr> <tr><td>09/338,933</td><td>23 June 1999 (23.06.99)</td><td>US</td></tr> <tr><td>09/404,879</td><td>24 September 1999 (24.09.99)</td><td>US</td></tr> </table> <p>(71) Applicant: CORIXA CORPORATION [US/US]; Suite 200, 1124 Columbia Street, Seattle, WA 98104 (US).</p> <p>(72) Inventors: MITCHAM, Jennifer, L.; 16677 Northeast 88th Street, Redmond, WA 98052 (US). KING, Gordon, E.; 1530 NW 52nd, #304, Seattle, WA 98107 (US). ALGATE, Paul, A.; 2010 Franklin Avenue E., #301, Seattle, WA 98102 (US). FRUDAKIS, Tony, N.; 7937 Broadmoor Pines Boulevard, Sarasota, FL 34243 (US).</p> <p>(74) Agents: MAKI, David, J. et al.; Seed and Berry LLP, Suite 6300, 701 Fifth Avenue, Seattle, WA 98104-7092 (US).</p>		09/215,681	17 December 1998 (17.12.98)	US	09/216,003	17 December 1998 (17.12.98)	US	09/338,933	23 June 1999 (23.06.99)	US	09/404,879	24 September 1999 (24.09.99)	US	<p>(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).</p> <p><b>Published</b> <i>Without international search report and to be republished upon receipt of that report.</i></p>	
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<p>(54) Title: COMPOSITIONS AND METHODS FOR THERAPY AND DIAGNOSIS OF OVARIAN CANCER</p> <p style="text-align: center;"> </p> <p>(57) Abstract</p> <p>Compositions and methods for the therapy and diagnosis of cancer, such as ovarian cancer, are disclosed. Compositions may comprise one or more ovarian carcinoma proteins, immunogenic portions thereof, polynucleotides that encode such portions or antibodies or immune system cells specific for such proteins. Such compositions may be used, for example, for the prevention and treatment of diseases such as ovarian cancer. Methods are further provided for identifying tumor antigens that are secreted from ovarian carcinomas and/or other tumors. Polypeptides and polynucleotides as provided herein may further be used for the diagnosis and monitoring of ovarian cancer.</p>															

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## COMPOSITIONS AND METHODS FOR THERAPY AND DIAGNOSIS OF OVARIAN CANCER

### TECHNICAL FIELD

The present invention relates generally to ovarian cancer therapy. The 5 invention is more specifically related to polypeptides comprising at least a portion of an ovarian carcinoma protein, and to polynucleotides encoding such polypeptides, as well as antibodies and immune system cells that specifically recognize such polypeptides. Such polypeptides, polynucleotides, antibodies and cells may be used in vaccines and pharmaceutical compositions for treatment of ovarian cancer.

### 10 BACKGROUND OF THE INVENTION

Ovarian cancer is a significant health problem for women in the United States and throughout the world. Although advances have been made in detection and therapy of this cancer, no vaccine or other universally successful method for prevention or treatment is currently available. Management of the disease currently relies on a 15 combination of early diagnosis and aggressive treatment, which may include one or more of a variety of treatments such as surgery, radiotherapy, chemotherapy and hormone therapy. The course of treatment for a particular cancer is often selected based on a variety of prognostic parameters, including an analysis of specific tumor markers. However, the use of established markers often leads to a result that is difficult to 20 interpret, and high mortality continues to be observed in many cancer patients.

Immunotherapies have the potential to substantially improve cancer treatment and survival. Such therapies may involve the generation or enhancement of an immune response to an ovarian carcinoma antigen. However, to date, relatively few ovarian carcinoma antigens are known and the generation of an immune response 25 against such antigens has not been shown to be therapeutically beneficial.

Accordingly, there is a need in the art for improved methods for identifying ovarian tumor antigens and for using such antigens in the therapy of ovarian cancer. The present invention fulfills these needs and further provides other related advantages.

## SUMMARY OF THE INVENTION

Briefly stated, this invention provides compositions and methods for the therapy of cancer, such as ovarian cancer. In one aspect, the present invention provides polypeptides comprising an immunogenic portion of an ovarian carcinoma protein, or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with ovarian carcinoma protein-specific antisera is not substantially diminished. Within certain embodiments, the ovarian carcinoma protein comprises a sequence that is encoded by a polynucleotide sequence selected from the group consisting of SEQ ID NOs:1-81, 313-331, 359, 366, 10 379, 385-387, 391 and complements of such polynucleotides.

The present invention further provides polynucleotides that encode a polypeptide as described above or a portion thereof, expression vectors comprising such polynucleotides and host cells transformed or transfected with such expression vectors.

Within other aspects, the present invention provides pharmaceutical compositions and vaccines. Pharmaceutical compositions may comprise a physiologically acceptable carrier or excipient in combination with one or more of: (i) a polypeptide comprising an immunogenic portion of an ovarian carcinoma protein, or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with ovarian carcinoma protein-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence encoded by a polynucleotide that comprises a sequence recited in any one of SEQ ID NOs:1-81, 313-331, 359, 366, 379, 385-387 or 391; (ii) a polynucleotide encoding such a polypeptide; (iii) an antibody that specifically binds to such a polypeptide; (iv) an antigen-presenting cell that expresses such a polypeptide and/or (v) a T cell that specifically reacts with such a polypeptide. Vaccines may comprise a non-specific immune response enhancer in combination with one or more of: (i) a polypeptide comprising an immunogenic portion of an ovarian carcinoma protein, or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with ovarian carcinoma protein-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence encoded by a

polynucleotide that comprises a sequence recited in any one of SEQ ID NOs:1-81, 313-331, 359, 366, 379, 385-387 or 391; (ii) a polynucleotide encoding such a polypeptide; (iii) an anti-idiotypic antibody that is specifically bound by an antibody that specifically binds to such a polypeptide; (iv) an antigen-presenting cell that expresses such a polypeptide and/or (v) a T cell that specifically reacts with such a polypeptide.

The present invention further provides, in other aspects, fusion proteins that comprise at least one polypeptide as described above, as well as polynucleotides encoding such fusion proteins.

Within related aspects, pharmaceutical compositions comprising a fusion protein or polynucleotide encoding a fusion protein in combination with a physiologically acceptable carrier are provided.

Vaccines are further provided, within other aspects, comprising a fusion protein or polynucleotide encoding a fusion protein in combination with a non-specific immune response enhancer.

Within further aspects, the present invention provides methods for inhibiting the development of a cancer in a patient, comprising administering to a patient a pharmaceutical composition or vaccine as recited above.

The present invention further provides, within other aspects, methods for stimulating and/or expanding T cells, comprising contacting T cells with (a) a polypeptide comprising an immunogenic portion of an ovarian carcinoma protein, or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with ovarian carcinoma protein-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence encoded by a polynucleotide that comprises a sequence recited in any one of SEQ ID NOs:1-387 or 391; (b) a polynucleotide encoding such a polypeptide and/or (c) an antigen-presenting cell that expresses such a polypeptide under conditions and for a time sufficient to permit the stimulation and/or expansion of T cells. Such polypeptide, polynucleotide and/or antigen presenting cell(s) may be present within a pharmaceutical composition or vaccine, for use in stimulating and/or expanding T cells in a mammal.

Within other aspects, the present invention provides methods for inhibiting the development of ovarian cancer in a patient, comprising administering to a patient T cells prepared as described above.

Within further aspects, the present invention provides methods for inhibiting the development of ovarian cancer in a patient, comprising the steps of: (a) incubating CD4<sup>+</sup> and/or CD8<sup>+</sup> T cells isolated from a patient with one or more of: (i) a polypeptide comprising an immunogenic portion of an ovarian carcinoma protein, or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with ovarian carcinoma protein-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence encoded by a polynucleotide that comprises a sequence recited in any one of SEQ ID NOS: 1+387 or 391; (ii) a polynucleotide encoding such a polypeptide; or (iii) an antigen-presenting cell that expresses such a polypeptide; such that T cells proliferate; and (b) administering to the patient an effective amount of the proliferated T cells, and thereby inhibiting the development of ovarian cancer in the patient. The proliferated cells may be cloned prior to administration to the patient.

The present invention also provides, within other aspects, methods for identifying secreted tumor antigens. Such methods comprise the steps of: (a) implanting tumor cells in an immunodeficient mammal; (b) obtaining serum from the immunodeficient mammal after a time sufficient to permit secretion of tumor antigens into the serum; (c) immunizing an immunocompetent mammal with the serum; (d) obtaining antiserum from the immunocompetent mammal; and (e) screening a tumor expression library with the antiserum, and therefrom identifying a secreted tumor antigen. A preferred method for identifying a secreted ovarian carcinoma antigen comprises the steps of: (a) implanting ovarian carcinoma cells in a SCID mouse; (b) obtaining serum from the SCID mouse after a time sufficient to permit secretion of ovarian carcinoma antigens into the serum; (c) immunizing an immunocompetent mouse with the serum; (d) obtaining antiserum from the immunocompetent mouse; and (e) screening an ovarian carcinoma expression library with the antiserum, and therefrom identifying a secreted ovarian carcinoma antigen.

These and other aspects of the present invention will become apparent upon reference to the following detailed description and attached drawings. All references disclosed herein are hereby incorporated by reference in their entirety as if each was incorporated individually.

### 5 BRIEF DESCRIPTION OF THE DRAWINGS

Figures 1A-1S (SEQ ID NOs:1-71) depict partial sequences of polynucleotides encoding representative secreted ovarian carcinoma antigens.

- Figures 2A-2C depict full insert sequences for three of the clones of Figure 1. Figure 2A shows the sequence designated O7E (11731; SEQ ID NO:72),  
10 Figure 2B shows the sequence designated O9E (11785; SEQ ID NO:73) and Figure 2C shows the sequence designated O8E (13695; SEQ ID NO:74).

Figure 3 presents results of microarray expression analysis of the ovarian carcinoma sequence designated O8E.

- Figure 4 presents a partial sequence of a polynucleotide (designated 3g; SEQ ID NO:75) encoding an ovarian carcinoma sequence that is a splice fusion between the human T-cell leukemia virus type I oncoprotein TAX and osteonectin.  
15

Figure 5 presents the ovarian carcinoma polynucleotide designated 3f (SEQ ID NO:76).

- Figure 6 presents the ovarian carcinoma polynucleotide designated 6b  
20 (SEQ ID NO:77).

Figures 7A and 7B present the ovarian carcinoma polynucleotides designated 8e (SEQ ID NO:78) and 8h (SEQ ID NO:79).

- Figure 8 presents the ovarian carcinoma polynucleotide designated 12c (SEQ ID NO:80).  
25 Figure 9 presents the ovarian carcinoma polynucleotide designated 12h (SEQ ID NO:81).

Figure 10 depicts results of microarray expression analysis of the ovarian carcinoma sequence designated 3f.

- Figure 11 depicts results of microarray expression analysis of the ovarian carcinoma sequence designated 6b.  
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Figure 12 depicts results of microarray expression analysis of the ovarian carcinoma sequence designated 8e.

Figure 13 depicts results of microarray expression analysis of the ovarian carcinoma sequence designated 12c.

5       Figure 14 depicts results of microarray expression analysis of the ovarian carcinoma sequence designated 12h.

Figures 15A-15EEE depict partial sequences of additional polynucleotides encoding representative secreted ovarian carcinoma antigens (SEQ ID NOs:82-310).

10      Figure 16 is a diagram illustrating the location of various partial O8E sequences within the full length sequence.

#### DETAILED DESCRIPTION OF THE INVENTION

As noted above, the present invention is generally directed to compositions and methods for the therapy of cancer, such as ovarian cancer. The 15 compositions described herein may include immunogenic polypeptides, polynucleotides encoding such polypeptides, binding agents such as antibodies that bind to a polypeptide, antigen presenting cells (APCs) and/or immune system cells (e.g., T cells).

Polypeptides of the present invention generally comprise at least an immunogenic portion of an ovarian carcinoma protein or a variant thereof. Certain 20 ovarian carcinoma proteins have been identified using an immunoassay technique, and are referred to herein as ovarian carcinoma antigens. An "ovarian carcinoma antigen" is a protein that is expressed by ovarian tumor cells (preferably human cells) at a level that is at least two fold higher than the level in normal ovarian cells. Certain ovarian carcinoma antigens react detectably (within an immunoassay, such as an ELISA or 25 Western blot) with antisera generated against serum from an immunodeficient animal implanted with a human ovarian tumor. Such ovarian carcinoma antigens are shed or secreted from an ovarian tumor into the sera of the immunodeficient animal. Accordingly, certain ovarian carcinoma antigens provided herein are secreted antigens. Certain nucleic acid sequences of the subject invention generally comprise a DNA or

RNA sequence that encodes all or a portion of such a polypeptide, or that is complementary to such a sequence.

The present invention further provides ovarian carcinoma sequences that are identified using techniques to evaluate altered expression within an ovarian tumor.

- 5 Such sequences may be polynucleotide or protein sequences. Ovarian carcinoma sequences are generally expressed in an ovarian tumor at a level that is at least two fold, and preferably at least five fold, greater than the level of expression in normal ovarian tissue, as determined using a representative assay provided herein. Certain partial ovarian carcinoma polynucleotide sequences are presented herein. Proteins encoded by  
10 genes comprising such polynucleotide sequences (or complements thereof) are also considered ovarian carcinoma proteins.

Antibodies are generally immune system proteins, or antigen-binding fragments thereof, that are capable of binding to at least a portion of an ovarian carcinoma polypeptide as described herein. T cells that may be employed within the  
15 compositions provided herein are generally T cells (e.g., CD4<sup>+</sup> and/or CD8<sup>+</sup>) that are specific for such a polypeptide. Certain methods described herein further employ antigen-presenting cells (such as dendritic cells or macrophages) that express an ovarian carcinoma polypeptide as provided herein.

20 **OVARIAN CARCINOMA POLYNUCLEOTIDES**

Any polynucleotide that encodes an ovarian carcinoma protein or a portion or other variant thereof as described herein is encompassed by the present invention. Preferred polynucleotides comprise at least 15 consecutive nucleotides, preferably at least 30 consecutive nucleotides, and more preferably at least 45  
25 consecutive nucleotides, that encode a portion of an ovarian carcinoma protein. More preferably, a polynucleotide encodes an immunogenic portion of an ovarian carcinoma protein, such as an ovarian carcinoma antigen. Polynucleotides complementary to any such sequences are also encompassed by the present invention. Polynucleotides may be single-stranded (coding or antisense) or double-stranded, and may be DNA (genomic,  
30 cDNA or synthetic) or RNA molecules. Additional coding or non-coding sequences may, but need not, be present within a polynucleotide of the present invention, and a

polynucleotide may, but need not, be linked to other molecules and/or support materials.

Polynucleotides may comprise a native sequence (*i.e.*, an endogenous sequence that encodes an ovarian carcinoma protein or a portion thereof) or may 5 comprise a variant of such a sequence. Polynucleotide variants may contain one or more substitutions, additions, deletions and/or insertions such that the immunogenicity of the encoded polypeptide is not diminished, relative to a native ovarian carcinoma protein. The effect on the immunogenicity of the encoded polypeptide may generally be assessed as described herein. Variants preferably exhibit at least about 70% identity, 10 more preferably at least about 80% identity and most preferably at least about 90% identity to a polynucleotide sequence that encodes a native ovarian carcinoma protein or a portion thereof.

The percent identity for two polynucleotide or polypeptide sequences may be readily determined by comparing sequences using computer algorithms well 15 known to those of ordinary skill in the art, such as Megalign, using default parameters. Comparisons between two sequences are typically performed by comparing the sequences over a comparison window to identify and compare local regions of sequence similarity. A "comparison window" as used herein, refers to a segment of at least about 20 contiguous positions, usually 30 to about 75, or 40 to about 50, in which a sequence 20 may be compared to a reference sequence of the same number of contiguous positions after the two sequences are optimally aligned. Optimal alignment of sequences for comparison may be conducted, for example, using the Megalign program in the Lasergene suite of bioinformatics software (DNASTAR, Inc., Madison, WI), using default parameters. Preferably, the percentage of sequence identity is determined by 25 comparing two optimally aligned sequences over a window of comparison of at least 20 positions, wherein the portion of the polynucleotide or polypeptide sequence in the window may comprise additions or deletions (*i.e.*, gaps) of 20 % or less, usually 5 to 15 %, or 10 to 12%, relative to the reference sequence (which does not contain additions or deletions). The percent identity may be calculated by determining the number of 30 positions at which the identical nucleic acid bases or amino acid residue occurs in both sequences to yield the number of matched positions, dividing the number of matched

positions by the total number of positions in the reference sequence (*i.e.*, the window size) and multiplying the results by 100 to yield the percentage of sequence identity.

Variants may also, or alternatively, be substantially homologous to a native gene, or a portion or complement thereof. Such polynucleotide variants are 5 capable of hybridizing under moderately stringent conditions to a naturally occurring DNA sequence encoding a native ovarian carcinoma protein (or a complementary sequence). Suitable moderately stringent conditions include prewashing in a solution of 5 X SSC, 0.5% SDS, 1.0 mM EDTA (pH 8.0); hybridizing at 50°C-65°C, 5 X SSC, overnight; followed by washing twice at 65°C for 20 minutes with each of 2X, 0.5X and 10 0.2X SSC containing 0.1% SDS.

It will be appreciated by those of ordinary skill in the art that, as a result of the degeneracy of the genetic code, there are many nucleotide sequences that encode a polypeptide as described herein. Some of these polynucleotides bear minimal homology to the nucleotide sequence of any native gene. Nonetheless, polynucleotides 15 that vary due to differences in codon usage are specifically contemplated by the present invention. Further, alleles of the genes comprising the polynucleotide sequences provided herein are within the scope of the present invention. Alleles are endogenous genes that are altered as a result of one or more mutations, such as deletions, additions and/or substitutions of nucleotides. The resulting mRNA and protein may, but need 20 not, have an altered structure or function. Alleles may be identified using standard techniques (such as hybridization, amplification and/or database sequence comparison).

Polynucleotides may be prepared using any of a variety of techniques. For example, an ovarian carcinoma polynucleotide may be identified, as described in more detail below, by screening a late passage ovarian tumor expression library with 25 antisera generated against sera of immunocompetent mice after injection of such mice with sera from SCID mice implanted with late passage ovarian tumors. Ovarian carcinoma polynucleotides may also be identified using any of a variety of techniques designed to evaluate differential gene expression. Alternatively, polynucleotides may be amplified from cDNA prepared from ovarian tumor cells. Such polynucleotides may 30 be amplified via polymerase chain reaction (PCR). For this approach, sequence-specific

primers may be designed based on the sequences provided herein, and may be purchased or synthesized.

An amplified portion may be used to isolate a full length gene from a suitable library (e.g., an ovarian carcinoma cDNA library) using well known techniques.

5 Within such techniques, a library (cDNA or genomic) is screened using one or more polynucleotide probes or primers suitable for amplification. Preferably, a library is size-selected to include larger molecules. Random primed libraries may also be preferred for identifying 5' and upstream regions of genes. Genomic libraries are preferred for obtaining introns and extending 5' sequences.

10 For hybridization techniques, a partial sequence may be labeled (e.g., by nick-translation or end-labeling with  $^{32}\text{P}$ ) using well known techniques. A bacterial or bacteriophage library is then screened by hybridizing filters containing denatured bacterial colonies (or lawns containing phage plaques) with the labeled probe (see Sambrook et al., *Molecular Cloning: A Laboratory Manual*, Cold Spring Harbor 15 Laboratories, Cold Spring Harbor, NY, 1989). Hybridizing colonies or plaques are selected and expanded, and the DNA is isolated for further analysis. cDNA clones may be analyzed to determine the amount of additional sequence by, for example, PCR using a primer from the partial sequence and a primer from the vector. Restriction maps and partial sequences may be generated to identify one or more overlapping clones. The 20 complete sequence may then be determined using standard techniques, which may involve generating a series of deletion clones. The resulting overlapping sequences are then assembled into a single contiguous sequence. A full length cDNA molecule can be generated by ligating suitable fragments, using well known techniques.

Alternatively, there are numerous amplification techniques for obtaining 25 a full length coding sequence from a partial cDNA sequence. Within such techniques, amplification is generally performed via PCR. Any of a variety of commercially available kits may be used to perform the amplification step. Primers may be designed using, for example, software well known in the art. Primers are preferably 22-30 nucleotides in length, have a GC content of at least 50% and anneal to the target 30 sequence at temperatures of about 68°C to 72°C. The amplified region may be

sequenced as described above, and overlapping sequences assembled into a contiguous sequence.

One such amplification technique is inverse PCR (*see* Triglia et al., *Nucl. Acids Res.* 16:8186, 1988), which uses restriction enzymes to generate a fragment in the known region of the gene. The fragment is then circularized by intramolecular ligation and used as a template for PCR with divergent primers derived from the known region. Within an alternative approach, sequences adjacent to a partial sequence may be retrieved by amplification with a primer to a linker sequence and a primer specific to a known region. The amplified sequences are typically subjected to a second round of amplification with the same linker primer and a second primer specific to the known region. A variation on this procedure, which employs two primers that initiate extension in opposite directions from the known sequence, is described in WO 96/38591. Additional techniques include capture PCR (Lagerstrom et al., *PCR Methods Appl.* 1:111-19, 1991) and walking PCR (Parker et al., *Nucl. Acids. Res.* 19:3055-60, 1991). Other methods employing amplification may also be employed to obtain a full length cDNA sequence.

In certain instances, it is possible to obtain a full length cDNA sequence by analysis of sequences provided in an expressed sequence tag (EST) database, such as that available from GenBank. Searches for overlapping ESTs may generally be performed using well-known programs (e.g., NCBI BLAST searches), and such ESTs may be used to generate a contiguous full length sequence.

Certain nucleic acid sequences of cDNA molecules encoding portions of ovarian carcinoma antigens are provided in Figures 1A-1S (SEQ ID NOS:1 to 71) and Figures 15A to 15EEE (SEQ ID NOS:82 to 310). The sequences provided in Figures 1A-1S appear to be novel. For sequences in Figures 15A-15EEE, database searches revealed matches having substantial identity. These polynucleotides were isolated by serological screening of an ovarian tumor cDNA expression library, using a technique designed to identify secreted tumor antigens. Briefly, a late passage ovarian tumor expression library was prepared from a SCID-derived human ovarian tumor (OV9334) in the vector λ-screen (Novagen). The sera used for screening were obtained by injecting immunocompetent mice with sera from SCID mice implanted with one late

passage ovarian tumors. This technique permits the identification of cDNA molecules that encode immunogenic portions of secreted tumor antigens.

The polynucleotides recited herein, as well as full length polynucleotides comprising such sequences, other portions of such full length polynucleotides, and 5 sequences complementary to all or a portion of such full length molecules, are specifically encompassed by the present invention. It will be apparent to those of ordinary skill in the art that this technique can also be applied to the identification of antigens that are secreted from other types of tumors.

Other nucleic acid sequences of cDNA molecules encoding portions of 10 ovarian carcinoma proteins are provided in Figures 4-9 (SEQ ID NOs:75-81), as well as SEQ ID NOs:313-384. These sequences were identified by screening a microarray of cDNAs for tumor-associated expression (*i.e.*, expression that is at least five fold greater in an ovarian tumor than in normal ovarian tissue, as determined using a representative assay provided herein). Such screens were performed using a Synteni microarray (Palo 15 Alto, CA) according to the manufacturer's instructions (and essentially as described by Schena et al., *Proc. Natl. Acad. Sci. USA* 93:10614-10619, 1996 and Heller et al., *Proc. Natl. Acad. Sci. USA* 94:2150-2155, 1997). SEQ ID NOs:311 and 391 provide full length sequences incorporating certain of these nucleic acid sequences.

Any of a variety of well known techniques may be used to evaluate 20 tumor-associated expression of a cDNA. For example, hybridization techniques using labeled polynucleotide probes may be employed. Alternatively, or in addition, amplification techniques such as real-time PCR may be used (see Gibson et al., *Genome Research* 6:995-1001, 1996; Heid et al., *Genome Research* 6:986-994, 1996). Real-time PCR is a technique that evaluates the level of PCR product accumulation during 25 amplification. This technique permits quantitative evaluation of mRNA levels in multiple samples. Briefly, mRNA is extracted from tumor and normal tissue and cDNA is prepared using standard techniques. Real-time PCR may be performed, for example, using a Perkin Elmer/Applied Biosystems (Foster City, CA) 7700 Prism instrument. Matching primers and fluorescent probes may be designed for genes of interest using, 30 for example, the primer express program provided by Perkin Elmer/Applied Biosystems (Foster City, CA). Optimal concentrations of primers and probes may be initially

- determined by those of ordinary skill in the art, and control (e.g.,  $\beta$ -actin) primers and probes may be obtained commercially from, for example, Perkin Elmer/Applied Biosystems (Foster City, CA). To quantitate the amount of specific RNA in a sample, a standard curve is generated alongside using a plasmid containing the gene of interest.
- 5 Standard curves may be generated using the Ct values determined in the real-time PCR, which are related to the initial cDNA concentration used in the assay. Standard dilutions ranging from 10-10<sup>6</sup> copies of the gene of interest are generally sufficient. In addition, a standard curve is generated for the control sequence. This permits standardization of initial RNA content of a tissue sample to the amount of control for
- 10 comparison purposes.

Polynucleotide variants may generally be prepared by any method known in the art, including chemical synthesis by, for example, solid phase phosphoramidite chemical synthesis. Modifications in a polynucleotide sequence may also be introduced using standard mutagenesis techniques, such as oligonucleotide-directed site-specific mutagenesis (see Adelman et al., *DNA* 2:183, 1983). Alternatively, RNA molecules may be generated by *in vitro* or *in vivo* transcription of DNA sequences encoding an ovarian carcinoma antigen, or portion thereof, provided that the DNA is incorporated into a vector with a suitable RNA polymerase promoter (such as T7 or SP6). Certain portions may be used to prepare an encoded polypeptide,

15 20 as described herein. In addition, or alternatively, a portion may be administered to a patient such that the encoded polypeptide is generated *in vivo*.

A portion of a sequence complementary to a coding sequence (i.e., an antisense polynucleotide) may also be used as a probe or to modulate gene expression. cDNA constructs that can be transcribed into antisense RNA may also be introduced

25 into cells or tissues to facilitate the production of antisense RNA. An antisense polynucleotide may be used, as described herein, to inhibit expression of an ovarian carcinoma protein. Antisense technology can be used to control gene expression through triple-helix formation, which compromises the ability of the double helix to open sufficiently for the binding of polymerases, transcription factors or regulatory

30 molecules (see Gee et al., In Huber and Carr, *Molecular and Immunologic Approaches*, Futura Publishing Co. (Mt. Kisco, NY; 1994). Alternatively, an antisense molecule

may be designed to hybridize with a control region of a gene (e.g., promoter, enhancer or transcription initiation site), and block transcription of the gene; or to block translation by inhibiting binding of a transcript to ribosomes.

Any polynucleotide may be further modified to increase stability *in vivo*.

5 Possible modifications include, but are not limited to, the addition of flanking sequences at the 5' and/or 3' ends; the use of phosphorothioate or 2'-O-methyl rather than phosphodiester linkages in the backbone; and/or the inclusion of nontraditional bases such as inosine, queosine and wybutoxine, as well as acetyl-, methyl-, thio- and other modified forms of adenine, cytidine, guanine, thymine and uridine.

10 Nucleotide sequences as described herein may be joined to a variety of other nucleotide sequences using established recombinant DNA techniques. For example, a polynucleotide may be cloned into any of a variety of cloning vectors, including plasmids, phagemids, lambda phage derivatives and cosmids. Vectors of particular interest include expression vectors, replication vectors, probe generation 15 vectors and sequencing vectors. In general, a vector will contain an origin of replication functional in at least one organism, convenient restriction endonuclease sites and one or more selectable markers. Other elements will depend upon the desired use, and will be apparent to those of ordinary skill in the art.

Within certain embodiments, polynucleotides may be formulated so as to 20 permit entry into a cell of a mammal, and expression therein. Such formulations are particularly useful for therapeutic purposes, as described below. Those of ordinary skill in the art will appreciate that there are many ways to achieve expression of a polynucleotide in a target cell, and any suitable method may be employed. For example, a polynucleotide may be incorporated into a viral vector such as, but not 25 limited to, adenovirus, adeno-associated virus, retrovirus, or vaccinia or other pox virus (e.g., avian pox virus). Techniques for incorporating DNA into such vectors are well known to those of ordinary skill in the art. A retroviral vector may additionally transfer or incorporate a gene for a selectable marker (to aid in the identification or selection of transduced cells) and/or a targeting moiety, such as a gene that encodes a ligand for a 30 receptor on a specific target cell, to render the vector target specific. Targeting may

also be accomplished using an antibody, by methods known to those of ordinary skill in the art.

Other formulations for therapeutic purposes include colloidal dispersion systems, such as macromolecule complexes, nanocapsules, microspheres, beads, and 5 lipid-based systems including oil-in-water emulsions, micelles, mixed micelles, and liposomes. A preferred colloidal system for use as a delivery vehicle *in vitro* and *in vivo* is a liposome (*i.e.*, an artificial membrane vesicle). The preparation and use of such systems is well known in the art.

#### 10 OVARIAN CARCINOMA POLYPEPTIDES

Within the context of the present invention, polypeptides may comprise at least an immunogenic portion of an ovarian carcinoma protein or a variant thereof, as described herein. As noted above, certain ovarian carcinoma proteins are ovarian carcinoma antigens that are expressed by ovarian tumor cells and react detectably 15 within an immunoassay (such as an ELISA) with antisera generated against serum from an immunodeficient animal implanted with an ovarian tumor. Other ovarian carcinoma proteins are encoded by ovarian carcinoma polynucleotides recited herein. Polypeptides as described herein may be of any length. Additional sequences derived from the native protein and/or heterologous sequences may be present, and such sequences may (but 20 need not) possess further immunogenic or antigenic properties.

An "immunogenic portion," as used herein is a portion of an antigen that is recognized (*i.e.*, specifically bound) by a B-cell and/or T-cell surface antigen receptor. Such immunogenic portions generally comprise at least 5 amino acid residues, more preferably at least 10, and still more preferably at least 20 amino acid 25 residues of an ovarian carcinoma protein or a variant thereof. Preferred immunogenic portions are encoded by cDNA molecules isolated as described herein. Further immunogenic portions may generally be identified using well known techniques, such as those summarized in Paul, *Fundamental Immunology*, 3rd ed., 243-247 (Raven Press, 1993) and references cited therein. Such techniques include screening polypeptides for 30 the ability to react with ovarian carcinoma protein-specific antibodies, antisera and/or T-cell lines or clones. As used herein, antisera and antibodies are "ovarian carcinoma

protein-specific" if they specifically bind to an ovarian carcinoma protein (*i.e.*, they react with the ovarian carcinoma protein in an ELISA or other immunoassay, and do not react detectably with unrelated proteins). Such antisera, antibodies and T cells may be prepared as described herein, and using well known techniques. An immunogenic portion of a native ovarian carcinoma protein is a portion that reacts with such antisera, antibodies and/or T-cells at a level that is not substantially less than the reactivity of the full length polypeptide (*e.g.*, in an ELISA and/or T-cell reactivity assay). Such immunogenic portions may react within such assays at a level that is similar to or greater than the reactivity of the full length protein. Such screens may generally be performed using methods well known to those of ordinary skill in the art, such as those described in Harlow and Lane, *Antibodies: A Laboratory Manual*, Cold Spring Harbor Laboratory, 1988. For example, a polypeptide may be immobilized on a solid support and contacted with patient sera to allow binding of antibodies within the sera to the immobilized polypeptide. Unbound sera may then be removed and bound antibodies detected using, for example,  $^{125}\text{I}$ -labeled Protein A.

As noted above, a composition may comprise a variant of a native ovarian carcinoma protein. A polypeptide "variant," as used herein, is a polypeptide that differs from a native ovarian carcinoma protein in one or more substitutions, deletions, additions and/or insertions, such that the immunogenicity of the polypeptide is not substantially diminished. In other words, the ability of a variant to react with ovarian carcinoma protein-specific antisera may be enhanced or unchanged, relative to the native ovarian carcinoma protein, or may be diminished by less than 50%, and preferably less than 20%, relative to the native ovarian carcinoma protein. Such variants may generally be identified by modifying one of the above polypeptide sequences and evaluating the reactivity of the modified polypeptide with ovarian carcinoma protein-specific antibodies or antisera as described herein. Preferred variants include those in which one or more portions, such as an N-terminal leader sequence or transmembrane domain, have been removed. Other preferred variants include variants in which a small portion (*e.g.*, 1-30 amino acids, preferably 5-15 amino acids) has been removed from the N- and/or C-terminal of the mature protein.

Polypeptide variants preferably exhibit at least about 70%, more preferably at least about 90% and most preferably at least about 95% identity to the native polypeptide. Preferably, a variant contains conservative substitutions. A "conservative substitution" is one in which an amino acid is substituted for another 5 amino acid that has similar properties, such that one skilled in the art of peptide chemistry would expect the secondary structure and hydropathic nature of the polypeptide to be substantially unchanged. Amino acid substitutions may generally be made on the basis of similarity in polarity, charge, solubility, hydrophobicity, hydrophilicity and/or the amphipathic nature of the residues. For example, negatively 10 charged amino acids include aspartic acid and glutamic acid; positively charged amino acids include lysine and arginine; and amino acids with uncharged polar head groups having similar hydrophilicity values include leucine, isoleucine and valine; glycine and alanine; asparagine and glutamine; and serine, threonine, phenylalanine and tyrosine. Other groups of amino acids that may represent conservative changes include: (1) ala, 15 pro, gly, glu, asp, gln, asn; ser, thr; (2) cys, ser, tyr, thr; (3) val, ile, leu, met, ala, phe; (4) lys, arg, his; and (5) phe, tyr, trp, his. A variant may also, or alternatively, contain nonconservative changes. Variants may also (or alternatively) be modified by, for example, the deletion or addition of amino acids that have minimal influence on the immunogenicity, secondary structure and hydropathic nature of the polypeptide.

20 As noted above, polypeptides may comprise a signal (or leader) sequence at the N-terminal end of the protein which co-translationally or post-translationally directs transfer of the protein. The polypeptide may also be conjugated to a linker or other sequence for ease of synthesis, purification or identification of the polypeptide (e.g., poly-His), or to enhance binding of the polypeptide to a solid support. 25 For example, a polypeptide may be conjugated to an immunoglobulin Fc region.

Polypeptides may be prepared using any of a variety of well known techniques. Recombinant polypeptides encoded by DNA sequences as described above may be readily prepared from the DNA sequences using any of a variety of expression vectors known to those of ordinary skill in the art. Expression may be achieved in any 30 appropriate host cell that has been transformed or transfected with an expression vector containing a DNA molecule that encodes a recombinant polypeptide. Suitable host

cells include prokaryotes, yeast and higher eukaryotic cells. Preferably, the host cells employed are *E. coli*, yeast or a mammalian cell line such as COS or CHO. Supernatants from suitable host/vector systems which secrete recombinant protein or polypeptide into culture media may be first concentrated using a commercially available filter. Following concentration, the concentrate may be applied to a suitable purification matrix such as an affinity matrix or an ion exchange resin. Finally, one or more reverse phase HPLC steps can be employed to further purify a recombinant polypeptide.

Portions and other variants having fewer than about 100 amino acids, and generally fewer than about 50 amino acids, may also be generated by synthetic means, using techniques well known to those of ordinary skill in the art. For example, such polypeptides may be synthesized using any of the commercially available solid-phase techniques, such as the Merrifield solid-phase synthesis method, where amino acids are sequentially added to a growing amino acid chain. See Merrifield, *J. Am. Chem. Soc.* 85:2149-2146, 1963. Equipment for automated synthesis of polypeptides is commercially available from suppliers such as Applied BioSystems, Inc. (Foster City, CA), and may be operated according to the manufacturer's instructions.

Within certain specific embodiments, a polypeptide may be a fusion protein that comprises multiple polypeptides as described herein, or that comprises one polypeptide as described herein and a known tumor antigen, such as an ovarian carcinoma protein or a variant of such a protein. A fusion partner may, for example, assist in providing T helper epitopes (an immunological fusion partner), preferably T helper epitopes recognized by humans, or may assist in expressing the protein (an expression enhancer) at higher yields than the native recombinant protein. Certain preferred fusion partners are both immunological and expression enhancing fusion partners. Other fusion partners may be selected so as to increase the solubility of the protein or to enable the protein to be targeted to desired intracellular compartments. Still further fusion partners include affinity tags, which facilitate purification of the protein.

Fusion proteins may generally be prepared using standard techniques, including chemical conjugation. Preferably, a fusion protein is expressed as a

recombinant protein, allowing the production of increased levels, relative to a non-fused protein, in an expression system. Briefly, DNA sequences encoding the polypeptide components may be assembled separately, and ligated into an appropriate expression vector. The 3' end of the DNA sequence encoding one polypeptide component is 5 ligated, with or without a peptide linker, to the 5' end of a DNA sequence encoding the second polypeptide component so that the reading frames of the sequences are in phase. This permits translation into a single fusion protein that retains the biological activity of both component polypeptides.

A peptide linker sequence may be employed to separate the first and the 10 second polypeptide components by a distance sufficient to ensure that each polypeptide folds into its secondary and tertiary structures. Such a peptide linker sequence is incorporated into the fusion protein using standard techniques well known in the art. Suitable peptide linker sequences may be chosen based on the following factors: 15 (1) their ability to adopt a flexible extended conformation; (2) their inability to adopt a secondary structure that could interact with functional epitopes on the first and second polypeptides; and (3) the lack of hydrophobic or charged residues that might react with the polypeptide functional epitopes. Preferred peptide linker sequences contain Gly, Asn and Ser residues. Other near neutral amino acids, such as Thr and Ala may also be used in the linker sequence. Amino acid sequences which may be usefully employed as 20 linkers include those disclosed in Maratea et al., *Gene* 40:39-46, 1985; Murphy et al., *Proc. Natl. Acad. Sci. USA* 83:8258-8262, 1986; U.S. Patent No. 4,935,233 and U.S. Patent No. 4,751,180. The linker sequence may generally be from 1 to about 50 amino acids in length. Linker sequences are not required when the first and second 25 polypeptides have non-essential N-terminal amino acid regions that can be used to separate the functional domains and prevent steric interference.

The ligated DNA sequences are operably linked to suitable transcriptional or translational regulatory elements. The regulatory elements responsible for expression of DNA are located only 5' to the DNA sequence encoding the first polypeptides. Similarly, stop codons required to end translation and 30 transcription termination signals are only present 3' to the DNA sequence encoding the second polypeptide.

Fusion proteins are also provided that comprise a polypeptide of the present invention together with an unrelated immunogenic protein. Preferably the immunogenic protein is capable of eliciting a recall response. Examples of such proteins include tetanus, tuberculosis and hepatitis proteins (see, for example, Stoute et al. *New Engl. J. Med.*; 336:86-91, 1997).

Within preferred embodiments, an immunological fusion partner is derived from protein D, a surface protein of the gram-negative bacterium *Haemophilus influenzae* B (WO 91/18926). Preferably, a protein D derivative comprises approximately the first third of the protein (e.g., the first N-terminal 100-110 amino acids), and a protein D derivative may be lipidated. Within certain preferred embodiments, the first 109 residues of a Lipoprotein D fusion partner is included on the N-terminus to provide the polypeptide with additional exogenous T-cell epitopes and to increase the expression level in *E. coli* (thus functioning as an expression enhancer). The lipid tail ensures optimal presentation of the antigen to antigen present cells. Other fusion partners include the non-structural protein from influenzae virus, NS1 (hemagglutinin). Typically, the N-terminal 81 amino acids are used, although different fragments that include T-helper epitopes may be used.

In another embodiment, the immunological fusion partner is the protein known as LYTA, or a portion thereof (preferably a C-terminal portion). LYTA is derived from *Streptococcus pneumoniae*, which synthesizes an N-acetyl-L-alanine amidase known as amidase LYTA (encoded by the LytA gene; *Gene* 43:265-292, 1986). LYTA is an autolysin that specifically degrades certain bonds in the peptidoglycan backbone. The C-terminal domain of the LYTA protein is responsible for the affinity to the choline or to some choline analogues such as DEAE. This property has been exploited for the development of *E. coli* C-LYTA expressing plasmids useful for expression of fusion proteins. Purification of hybrid proteins containing the C-LYTA fragment at the amino terminus has been described (see *Biotechnology* 10:795-798, 1992). Within a preferred embodiment, a repeat portion of LYTA may be incorporated into a fusion protein. A repeat portion is found in the C-terminal region starting at residue 178. A particularly preferred repeat portion incorporates residues 188-305.

In general, polypeptides (including fusion proteins) and polynucleotides as described herein are isolated. An "isolated" polypeptide or polynucleotide is one that is removed from its original environment. For example, a naturally-occurring protein is isolated if it is separated from some or all of the coexisting materials in the natural system. Preferably, such polypeptides are at least about 90% pure, more preferably at least about 95% pure and most preferably at least about 99% pure. A polynucleotide is considered to be isolated if, for example, it is cloned into a vector that is not a part of the natural environment.

#### 10 BINDING AGENTS

The present invention further provides agents, such as antibodies and antigen-binding fragments thereof, that specifically bind to an ovarian carcinoma protein. As used herein, an antibody, or antigen-binding fragment thereof, is said to "specifically bind" to an ovarian carcinoma protein if it reacts at a detectable level (within, for example, an ELISA) with an ovarian carcinoma protein, and does not react detectably with unrelated proteins under similar conditions. As used herein, "binding" refers to a noncovalent association between two separate molecules such that a "complex" is formed. The ability to bind may be evaluated by, for example, determining a binding constant for the formation of the complex. The binding constant is the value obtained when the concentration of the complex is divided by the product of the component concentrations. In general, two compounds are said to "bind," in the context of the present invention, when the binding constant for complex formation exceeds about  $10^3$  L/mol. The binding constant may be determined using methods well known in the art.

Binding agents may be further capable of differentiating between patients with and without a cancer, such as ovarian cancer, using the representative assays provided herein. In other words, antibodies or other binding agents that bind to a ovarian carcinoma antigen will generate a signal indicating the presence of a cancer in at least about 20% of patients with the disease, and will generate a negative signal indicating the absence of the disease in at least about 90% of individuals without the cancer. To determine whether a binding agent satisfies this requirement, biological

samples (e.g., blood; sera, leukophoresis, urine and/or tumor biopsies) from patients with and without a cancer (as determined using standard clinical tests) may be assayed as described herein for the presence of polypeptides that bind to the binding agent. It will be apparent that a statistically significant number of samples with and without the disease should be assayed. Each binding agent should satisfy the above criteria; however, those of ordinary skill in the art will recognize that binding agents may be used in combination to improve sensitivity.

- Any agent that satisfies the above requirements may be a binding agent. For example, a binding agent may be a ribosome, with or without a peptide component, 10 an RNA molecule or a polypeptide. In a preferred embodiment, a binding agent is an antibody or an antigen-binding fragment thereof. Antibodies may be prepared by any of a variety of techniques known to those of ordinary skill in the art. See, e.g., Harlow and Lane, *Antibodies: A Laboratory Manual*, Cold Spring Harbor Laboratory, 1988. In general, antibodies can be produced by cell culture techniques, including the generation 15 of monoclonal antibodies as described herein, or via transfection of antibody genes into suitable bacterial or mammalian cell hosts, in order to allow for the production of recombinant antibodies. In one technique, an immunogen comprising the polypeptide is initially injected into any of a wide variety of mammals (e.g., mice, rats, rabbits, sheep or goats). In this step, the polypeptides of this invention may serve as the immunogen 20 without modification. Alternatively, particularly for relatively short polypeptides, a superior immune response may be elicited if the polypeptide is joined to a carrier protein, such as bovine serum albumin or keyhole limpet hemocyanin. The immunogen is injected into the animal host, preferably according to a predetermined schedule incorporating one or more booster immunizations, and the animals are bled periodically. 25 Polyclonal antibodies specific for the polypeptide may then be purified from such antisera by, for example, affinity chromatography using the polypeptide coupled to a suitable solid support.

- Monoclonal antibodies specific for an antigenic polypeptide of interest may be prepared, for example, using the technique of Kohler and Milstein, *Eur. J. 30 Immunol.* 6:511-519, 1976, and improvements thereto. Briefly, these methods involve the preparation of immortal cell lines capable of producing antibodies having the

desired specificity (*i.e.*, reactivity with the polypeptide of interest). Such cell lines may be produced, for example, from spleen cells obtained from an animal immunized as described above. The spleen cells are then immortalized by, for example, fusion with a myeloma cell fusion partner, preferably one that is syngeneic with the immunized animal. A variety of fusion techniques may be employed. For example, the spleen cells and myeloma cells may be combined with a nonionic detergent for a few minutes and then plated at low density on a selective medium that supports the growth of hybrid cells, but not myeloma cells. A preferred selection technique uses HAT (hypoxanthine, aminopterin, thymidine) selection. After a sufficient time, usually about 1 to 2 weeks, colonies of hybrids are observed. Single colonies are selected and their culture supernatants tested for binding activity against the polypeptide. Hybridomas having high reactivity and specificity are preferred.

Monoclonal antibodies may be isolated from the supernatants of growing hybridoma colonies. In addition, various techniques may be employed to enhance the yield, such as injection of the hybridoma cell line into the peritoneal cavity of a suitable vertebrate host, such as a mouse. Monoclonal antibodies may then be harvested from the ascites fluid or the blood. Contaminants may be removed from the antibodies by conventional techniques, such as chromatography, gel filtration, precipitation, and extraction. The polypeptides of this invention may be used in the purification process in, for example, an affinity chromatography step.

Within certain embodiments, the use of antigen-binding fragments of antibodies may be preferred. Such fragments include Fab fragments, which may be prepared using standard techniques. Briefly, immunoglobulins may be purified from rabbit serum by affinity chromatography on Protein A bead columns (Harlow and Lane, 25 *Antibodies: A Laboratory Manual*, Cold Spring Harbor Laboratory, 1988) and digested by papain to yield Fab and Fc fragments. The Fab and Fc fragments may be separated by affinity chromatography on protein A bead columns.

Monoclonal antibodies of the present invention may be coupled to one or more therapeutic agents. Suitable agents in this regard include radionuclides, 30 differentiation inducers, drugs, toxins, and derivatives thereof. Preferred radionuclides include <sup>90</sup>Y, <sup>123</sup>I, <sup>125</sup>I, <sup>131</sup>I, <sup>186</sup>Re, <sup>188</sup>Re, <sup>211</sup>At, and <sup>212</sup>Bi. Preferred drugs include

methotrexate, and pyrimidine and purine analogs. Preferred differentiation inducers include phorbol esters and butyric acid. Preferred toxins include ricin, abrin, diphtheria toxin, cholera toxin, gelonin, *Pseudomonas* exotoxin, *Shigella* toxin, and pokeweed antiviral protein.

5 A therapeutic agent may be coupled (e.g., covalently bonded) to a suitable monoclonal antibody either directly or indirectly (e.g., via a linker group). A direct reaction between an agent and an antibody is possible when each possesses a substituent capable of reacting with the other. For example, a nucleophilic group, such as an amino or sulphydryl group, on one may be capable of reacting with a carbonyl-  
10 containing group, such as an anhydride or an acid halide, or with an alkyl group containing a good leaving group (e.g., a halide) on the other.

15 Alternatively, it may be desirable to couple a therapeutic agent and an antibody via a linker group. A linker group can function as a spacer to distance an antibody from an agent in order to avoid interference with binding capabilities. A linker group can also serve to increase the chemical reactivity of a substituent on an agent or an antibody, and thus increase the coupling efficiency. An increase in chemical reactivity may also facilitate the use of agents, or functional groups on agents, which otherwise would not be possible.

It will be evident to those skilled in the art that a variety of bifunctional  
20 or polyfunctional reagents, both homo- and hetero-functional (such as those described in the catalog of the Pierce Chemical Co., Rockford, IL), may be employed as the linker group. Coupling may be effected, for example, through amino groups, carboxyl groups, sulphydryl groups or oxidized carbohydrate residues. There are numerous references describing such methodology, e.g., U.S. Patent No. 4,671,958, to Rodwell et al.

25 Where a therapeutic agent is more potent when free from the antibody portion of the immunoconjugates of the present invention, it may be desirable to use a linker group which is cleavable during or upon internalization into a cell. A number of different cleavable linker groups have been described. The mechanisms for the intracellular release of an agent from these linker groups include cleavage by reduction  
30 of a disulfide bond (e.g., U.S. Patent No. 4,489,710, to Spitzer), by irradiation of a photolabile bond (e.g., U.S. Patent No. 4,625,014, to Senter et al.), by hydrolysis of

derivatized amino acid side chains (e.g., U.S. Patent No. 4,638,045, to Kohn et al.), by serum complement-mediated hydrolysis (e.g., U.S. Patent No. 4,671,958, to Rodwell et al.), and acid-catalyzed hydrolysis (e.g., U.S. Patent No. 4,569,789, to Blattler et al.).

It may be desirable to couple more than one agent to an antibody. In one embodiment, multiple molecules of an agent are coupled to one antibody molecule. In another embodiment, more than one type of agent may be coupled to one antibody. Regardless of the particular embodiment, immunoconjugates with more than one agent may be prepared in a variety of ways. For example, more than one agent may be coupled directly to an antibody molecule, or linkers which provide multiple sites for attachment can be used. Alternatively, a carrier can be used.

A carrier may bear the agents in a variety of ways, including covalent bonding either directly or via a linker group. Suitable carriers include proteins such as albumins (e.g., U.S. Patent No. 4,507,234, to Kato et al.), peptides and polysaccharides such as aminodextran (e.g., U.S. Patent No. 4,699,784, to Shih et al.). A carrier may also bear an agent by noncovalent bonding or by encapsulation, such as within a liposome vesicle (e.g., U.S. Patent Nos. 4,429,008 and 4,873,088). Carriers specific for radionuclide agents include radiohalogenated small molecules and chelating compounds. For example, U.S. Patent No. 4,735,792 discloses representative radiohalogenated small molecules and their synthesis. A radionuclide chelate may be formed from chelating compounds that include those containing nitrogen and sulfur atoms as the donor atoms for binding the metal, or metal oxide, radionuclide. For example, U.S. Patent No. 4,673,562, to Davison et al. discloses representative chelating compounds and their synthesis.

A variety of routes of administration for the antibodies and immunoconjugates may be used. Typically, administration will be intravenous, intramuscular, subcutaneous or in the bed of a resected tumor. It will be evident that the precise dose of the antibody/immunoconjugate will vary depending upon the antibody used, the antigen density on the tumor, and the rate of clearance of the antibody.

Also provided herein are anti-idiotypic antibodies that mimic an immunogenic portion of an ovarian carcinoma protein. Such antibodies may be raised against an antibody, or antigen-binding fragment thereof, that specifically binds to an

immunogenic portion of an ovarian carcinoma protein, using well known techniques. Anti-idiotypic antibodies that mimic an immunogenic portion of an ovarian carcinoma protein are those antibodies that bind to an antibody, or antigen-binding fragment thereof, that specifically binds to an immunogenic portion of an ovarian carcinoma 5 protein, as described herein.

#### T CELLS

Immunotherapeutic compositions may also, or alternatively, comprise T cells specific for an ovarian carcinoma protein. Such cells may generally be prepared *in vitro* or *ex vivo*, using standard procedures. For example, T cells may be present within 10 (or isolated from) bone marrow, peripheral blood or a fraction of bone marrow or peripheral blood of a mammal, such as a patient, using a commercially available cell separation system, such as the CEPRATE™ system, available from CellPro Inc., Bothell WA (see also U.S. Patent No. 5,240,856; U.S. Patent No. 5,215,926; WO 15 89/06280; WO 91/16116 and WO 92/07243). Alternatively, T cells may be derived from related or unrelated humans, non-human animals, cell lines or cultures.

T cells may be stimulated with an ovarian carcinoma polypeptide, polynucleotide encoding an ovarian carcinoma polypeptide and/or an antigen presenting cell (APC) that expresses such a polypeptide. Such stimulation is performed under 20 conditions and for a time sufficient to permit the generation of T cells that are specific for the polypeptide. Preferably, an ovarian carcinoma polypeptide or polynucleotide is present within a delivery vehicle, such as a microsphere, to facilitate the generation of specific T cells.

T cells are considered to be specific for an ovarian carcinoma 25 polypeptide if the T cells kill target cells coated with an ovarian carcinoma polypeptide or expressing a gene encoding such a polypeptide. T cell specificity may be evaluated using any of a variety of standard techniques. For example, within a chromium release assay or proliferation assay, a stimulation index of more than two fold increase in lysis and/or proliferation, compared to negative controls, indicates T cell specificity. Such 30 assays may be performed, for example, as described in Chen et al., *Cancer Res.* 54:1065-1070, 1994. Alternatively, detection of the proliferation of T cells may be

accomplished by a variety of known techniques. For example, T cell proliferation can be detected by measuring an increased rate of DNA synthesis (e.g., by pulse-labeling cultures of T cells with tritiated thymidine and measuring the amount of tritiated thymidine incorporated into DNA). Contact with an ovarian carcinoma polypeptide 5 (200 ng/ml - 100 µg/ml, preferably 100 ng/ml - 25 µg/ml) for 3 - 7 days should result in at least a two fold increase in proliferation of the T cells and/or contact as described above for 2-3 hours should result in activation of the T cells, as measured using standard cytokine assays in which a two fold increase in the level of cytokine release (e.g., TNF or IFN- $\gamma$ ) is indicative of T cell activation (see Coligan et al., Current 10 Protocols in Immunology, vol. 1, Wiley Interscience (Greene 1998)). T cells that have been activated in response to an ovarian carcinoma polypeptide, polynucleotide or ovarian carcinoma polypeptide-expressing APC may be CD4 $^{+}$  and/or CD8 $^{+}$ . Ovarian carcinoma polypeptide-specific T cells may be expanded using standard techniques. Within preferred embodiments, the T cells are derived from a patient or a related or 15 unrelated donor and are administered to the patient following stimulation and expansion.

For therapeutic purposes, CD4 $^{+}$  or CD8 $^{+}$  T cells that proliferate in response to an ovarian carcinoma polypeptide, polynucleotide or APC can be expanded in number either *in vitro* or *in vivo*. Proliferation of such T cells *in vitro* may be 20 accomplished in a variety of ways. For example, the T cells can be re-exposed to an ovarian carcinoma polypeptide, with or without the addition of T cell growth factors, such as interleukin-2, and/or stimulator cells that synthesize an ovarian carcinoma polypeptide. Alternatively, one or more T cells that proliferate in the presence of an ovarian carcinoma polypeptide can be expanded in number by cloning. Methods for 25 cloning cells are well known in the art, and include limiting dilution. Following expansion, the cells may be administered back to the patient as described, for example, by Chang et al., *Crit. Rev. Oncol. Hematol.* 22:213, 1996.

#### PHARMACEUTICAL COMPOSITIONS AND VACCINES

30 Within certain aspects, polypeptides, polynucleotides, binding agents and/or immune system cells as described herein may be incorporated into

pharmaceutical compositions or vaccines. Pharmaceutical compositions comprise one or more such compounds or cells and a physiologically acceptable carrier. Vaccines may comprise one or more such compounds or cells and a non-specific immune response enhancer. A non-specific immune response enhancer may be any substance  
5 that enhances an immune response to an exogenous antigen. Examples of non-specific immune response enhancers include adjuvants, biodegradable microspheres (e.g., polylactic galactide) and liposomes (into which the compound is incorporated; *see e.g.*, Fullerton, U.S. Patent No. 4,235,877). Vaccine preparation is generally described in, for example, M.F. Powell and M.J. Newman, eds., "Vaccine Design (the subunit and  
10 adjuvant approach)," Plenum Press (NY, 1995). Pharmaceutical compositions and vaccines within the scope of the present invention may also contain other compounds, which may be biologically active or inactive. For example, one or more immunogenic portions of other tumor antigens may be present, either incorporated into a fusion polypeptide or as a separate compound within the composition or vaccine.

15 A pharmaceutical composition or vaccine may contain DNA encoding one or more of the polypeptides as described above, such that the polypeptide is generated *in situ*. As noted above, the DNA may be present within any of a variety of delivery systems known to those of ordinary skill in the art, including nucleic acid expression systems, bacteria and viral expression systems. Appropriate nucleic acid  
20 expression systems contain the necessary DNA sequences for expression in the patient (such as a suitable promoter and terminating signal). Bacterial delivery systems involve the administration of a bacterium (such as *Bacillus-Calmette-Guerrin*) that expresses an immunogenic portion of the polypeptide on its cell surface. In a preferred embodiment, the DNA may be introduced using a viral expression system (e.g., vaccinia or other pox  
25 virus, retrovirus, or adenovirus), which may involve the use of a non-pathogenic (defective), replication competent virus. Suitable systems are disclosed, for example, in Fisher-Hoch et al., *PNAS* 86:317-321, 1989; Flexner et al., *Ann. N.Y. Acad. Sci.* 569:86-103, 1989; Flexner et al., *Vaccine* 8:17-21, 1990; U.S. Patent Nos. 4,603,112, 4,769,330, and 5,017,487; WO 89/01973; U.S. Patent No. 4,777,127; GB 2,200,651;  
30 EP 0,345,242; WO 91/02805; Berkner, *Biotechniques* 6:616-627, 1988; Rosenfeld et al., *Science* 252:431-434, 1991; Kolls et al., *PNAS* 91:215-219, 1994; Kass-Eisler et al.,

*PNAS* 90:11498-11502, 1993; Guzman et al., *Circulation* 88:2838-2848, 1993; and Guzman et al., *Cir. Res.* 73:1202-1207, 1993. Techniques for incorporating DNA into such expression systems are well known to those of ordinary skill in the art. The DNA may also be "naked," as described, for example, in Ulmer et al., *Science* 259:1745-1749, 5 1993 and reviewed by Cohen, *Science* 259:1691-1692, 1993. The uptake of naked DNA may be increased by coating the DNA onto biodegradable beads, which are efficiently transported into the cells.

While any suitable carrier known to those of ordinary skill in the art may be employed in the pharmaceutical compositions of this invention, the type of carrier 10 will vary depending on the mode of administration. Compositions of the present invention may be formulated for any appropriate manner of administration, including for example, topical, oral, nasal, intravenous, intracranial, intraperitoneal, subcutaneous or intramuscular administration. For parenteral administration, such as subcutaneous injection, the carrier preferably comprises water, saline, alcohol, a fat, a wax or a buffer. 15 For oral administration, any of the above carriers or a solid carrier, such as mannitol, lactose, starch, magnesium stearate, sodium saccharine, talcum, cellulose, glucose, sucrose, and magnesium carbonate, may be employed. Biodegradable microspheres (e.g., polylactate polyglycolate) may also be employed as carriers for the pharmaceutical compositions of this invention. Suitable biodegradable microspheres 20 are disclosed, for example, in U.S. Patent Nos. 4,897,268 and 5,075,109.

Such compositions may also comprise buffers (e.g., neutral buffered saline or phosphate buffered saline), carbohydrates (e.g., glucose, mannose, sucrose or dextrans), mannitol, proteins, polypeptides or amino acids such as glycine, antioxidants, chelating agents such as EDTA or glutathione, adjuvants (e.g., aluminum hydroxide) 25 and/or preservatives. Alternatively, compositions of the present invention may be formulated as a lyophilizate. Compounds may also be encapsulated within liposomes using well known technology.

Any of a variety of non-specific immune response enhancers may be employed in the vaccines of this invention. For example, an adjuvant may be included. 30 Most adjuvants contain a substance designed to protect the antigen from rapid catabolism, such as aluminum hydroxide or mineral oil, and a stimulator of immune

responses, such as lipid A, *Bordetella pertussis* or *Mycobacterium tuberculosis* derived proteins. Suitable adjuvants are commercially available as, for example, Freund's Incomplete Adjuvant and Complete Adjuvant (Difco Laboratories, Detroit, MI), Merck Adjuvant 65 (Merck and Company, Inc., Rahway, NJ), alum, biodegradable 5 microspheres, monophosphoryl lipid A and quill A. Cytokines, such as GM-CSF or interleukin-2, -7, or -12, may also be used as adjuvants.

Within the vaccines provided herein, the adjuvant composition is preferably designed to induce an immune response predominantly of the Th1 type. High levels of Th1-type cytokines (e.g., IFN- $\gamma$ , IL-2 and IL-12) tend to favor the 10 induction of cell mediated immune responses to an administered antigen. In contrast, high levels of Th2-type cytokines (e.g., IL-4, IL-5, IL-6, IL-10 and TNF- $\beta$ ) tend to favor the induction of humoral immune responses. Following application of a vaccine as provided herein, a patient will support an immune response that includes Th1- and Th2-type responses. Within a preferred embodiment, in which a response is 15 predominantly Th1-type, the level of Th1-type cytokines will increase to a greater extent than the level of Th2-type cytokines. The levels of these cytokines may be readily assessed using standard assays. For a review of the families of cytokines, see Mosmann and Coffman, *Ann. Rev. Immunol.* 7:145-173, 1989.

Preferred adjuvants for use in eliciting a predominantly Th1-type 20 response include, for example, a combination of monophosphoryl lipid A, preferably 3-de-O-acylated monophosphoryl lipid A (3D-MPL), together with an aluminum salt. MPL adjuvants are available from Ribi ImmunoChem Research Inc. (Hamilton, MT; see US Patent Nos. 4,436,727; 4,877,611; 4,866,034 and 4,912,094). Also preferred is AS-2 (SmithKline Beecham). CpG-containing oligonucleotides (in which the CpG 25 dinucleotide is unmethylated) also induce a predominantly Th1 response. Such oligonucleotides are well known and are described, for example, in WO 96/02555. Another preferred adjuvant is a saponin, preferably QS21, which may be used alone or in combination with other adjuvants. For example, an enhanced system involves the combination of a monophosphoryl lipid A and saponin derivative, such as the 30 combination of QS21 and 3D-MPL as described in WO 94/00153, or a less reactogenic composition where the QS21 is quenched with cholesterol, as described in WO

96/33739. Other preferred formulations comprises an oil-in-water emulsion and tocopherol. A particularly potent adjuvant formulation involving QS21, 3D-MPL and tocopherol in an oil-in-water emulsion is described in WO 95/17210. Any vaccine provided herein may be prepared using well known methods that result in a  
5 combination of antigen, immune response enhancer and a suitable carrier or excipient.

The compositions described herein may be administered as part of a sustained release formulation (*i.e.*, a formulation such as a capsule or sponge that effects a slow release of compound following administration). Such formulations may generally be prepared using well known technology and administered by, for example,  
10 oral, rectal or subcutaneous implantation, or by implantation at the desired target site. Sustained-release formulations may contain a polypeptide, polynucleotide or antibody dispersed in a carrier matrix and/or contained within a reservoir surrounded by a rate controlling membrane. Carriers for use within such formulations are biocompatible, and may also be biodegradable; preferably the formulation provides a relatively  
15 constant level of active component release. The amount of active compound contained within a sustained release formulation depends upon the site of implantation, the rate and expected duration of release and the nature of the condition to be treated or prevented.

Any of a variety of delivery vehicles may be employed within  
20 pharmaceutical compositions and vaccines to facilitate production of an antigen-specific immune response that targets tumor cells. Delivery vehicles include antigen presenting cells (APCs), such as dendritic cells, macrophages, B cells, monocytes and other cells that may be engineered to be efficient APCs. Such cells may, but need not, be genetically modified to increase the capacity for presenting the antigen, to improve  
25 activation and/or maintenance of the T cell response, to have anti-tumor effects *per se* and/or to be immunologically compatible with the receiver (*i.e.*, matched HLA haplotype). APCs may generally be isolated from any of a variety of biological fluids and organs, including tumor and peritumoral tissues, and may be autologous, allogeneic, syngeneic or xenogeneic cells.

30 Certain preferred embodiments of the present invention use dendritic cells or progenitors thereof as antigen-presenting cells. Dendritic cells are highly potent

APCs (Banchereau and Steinman, *Nature* 392:245-251, 1998) and have been shown to be effective as a physiological adjuvant for eliciting prophylactic or therapeutic antitumor immunity (see Timmerman and Levy, *Ann. Rev. Med.* 50:507-529, 1999). In general, dendritic cells may be identified based on their typical shape (stellate *in situ*,  
5 with marked cytoplasmic processes (dendrites) visible *in vitro*) and based on the lack of differentiation markers of B cells (CD19 and CD20), T cells (CD3), monocytes (CD14) and natural killer cells (CD56), as determined using standard assays. Dendritic cells may, of course, be engineered to express specific cell-surface receptors or ligands that are not commonly found on dendritic cells *in vivo* or *ex vivo*, and such modified  
10 dendritic cells are contemplated by the present invention. As an alternative to dendritic cells, secreted vesicles antigen-loaded dendritic cells (called exosomes) may be used within a vaccine (see Zitvogel et al., *Nature Med.* 4:594-600, 1998).

Dendritic cells and progenitors may be obtained from peripheral blood, bone marrow, tumor-infiltrating cells, peritumoral tissues-infiltrating cells, lymph  
15 nodes, spleen, skin, umbilical cord blood or any other suitable tissue or fluid. For example, dendritic cells may be differentiated *ex vivo* by adding a combination of cytokines such as GM-CSF, IL-4, IL-13 and/or TNF $\alpha$  to cultures of monocytes harvested from peripheral blood. Alternatively, CD34 positive cells harvested from peripheral blood, umbilical cord blood or bone marrow may be differentiated into  
20 dendritic cells by adding to the culture medium combinations of GM-CSF, IL-3, TNF $\alpha$ , CD40 ligand, LPS, flt3-ligand and/or other compound(s) that induce maturation and proliferation of dendritic cells.

Dendritic cells are conveniently categorized as "immature" and "mature" cells, which allows a simple way to discriminate between two well characterized  
25 phenotypes. However, this nomenclature should not be construed to exclude all possible intermediate stages of differentiation. Immature dendritic cells are characterized as APC with a high capacity for antigen uptake and processing, which correlates with the high expression of Fc $\gamma$  receptor, mannose receptor and DEC-205 marker. The mature phenotype is typically characterized by a lower expression of these  
30 markers, but a high expression of cell surface molecules responsible for T cell

activation such as class I and class II MHC, adhesion molecules (e.g., CD54 and CD11) and costimulatory molecules (e.g., CD40, CD80 and CD86).

APCs may generally be transfected with a polynucleotide encoding a ovarian carcinoma antigen (or portion or other variant thereof) such that the antigen, or  
5 an immunogenic portion thereof, is expressed on the cell surface. Such transfection may take place *ex vivo*, and a composition or vaccine comprising such transfected cells may then be used for therapeutic purposes, as described herein. Alternatively, a gene delivery vehicle that targets a dendritic or other antigen presenting cell may be administered to a patient, resulting in transfection that occurs *in vivo*. *In vivo* and *ex*  
10 *vivo* transfection of dendritic cells, for example, may generally be performed using any methods known in the art, such as those described in WO 97/24447, or the gene gun approach described by Mahvi et al., *Immunology and cell Biology* 75:456-460, 1997. Antigen loading of dendritic cells may be achieved by incubating dendritic cells or progenitor cells with the polypeptide, DNA (naked or within a plasmid vector) or RNA;  
15 or with antigen-expressing recombinant bacterium or viruses (e.g., vaccinia, fowlpox, adenovirus or lentivirus vectors). Prior to loading, the polypeptide may be covalently conjugated to an immunological partner that provides T cell help (e.g., a carrier molecule). Alternatively, a dendritic cell may be pulsed with a non-conjugated immunological partner, separately or in the presence of the polypeptide.

20

#### CANCER THERAPY

In further aspects of the present invention, the compositions described herein may be used for immunotherapy of cancer, such as ovarian cancer. Within such methods, pharmaceutical compositions and vaccines are typically administered to a  
25 patient. As used herein, a "patient" refers to any warm-blooded animal, preferably a human. A patient may or may not be afflicted with cancer. Accordingly, the above pharmaceutical compositions and vaccines may be used to prevent the development of a cancer or to treat a patient afflicted with a cancer. Within certain preferred embodiments, a patient is afflicted with ovarian cancer. Such cancer may be diagnosed  
30 using criteria generally accepted in the art, including the presence of a malignant tumor. Pharmaceutical compositions and vaccines may be administered either prior to or

following surgical removal of primary tumors and/or treatment such as administration of radiotherapy or conventional chemotherapeutic drugs.

Within certain embodiments, immunotherapy may be active immunotherapy, in which treatment relies on the *in vivo* stimulation of the endogenous host immune system to react against tumors with the administration of immuno response-modifying agents (such as tumor vaccines, bacterial adjuvants and/or cytokines).

Within other embodiments, immunotherapy may be passive immunotherapy, in which treatment involves the delivery of agents with established tumor-immune reactivity (such as effector cells or antibodies) that can directly or indirectly mediate antitumor effects and does not necessarily depend on an intact host immune system. Examples of effector cells include T lymphocytes (such as CD8<sup>+</sup> cytotoxic T lymphocytes and CD4<sup>+</sup> T-helper tumor-infiltrating lymphocytes), killer cells (such as Natural Killer cells and lymphokine-activated killer cells), B cells and antigen-presenting cells (such as dendritic cells and macrophages) expressing a polypeptide provided herein. T cell receptors and antibody receptors specific for the polypeptides recited herein may be cloned, expressed and transferred into other vectors or effector cells for adoptive immunotherapy. The polypeptides provided herein may also be used to generate antibodies or anti-idiotypic antibodies (as described above and in U.S. Patent No. 4,918,164) for passive immunotherapy.

Effector cells may generally be obtained in sufficient quantities for adoptive immunotherapy by growth *in vitro*, as described herein. Culture conditions for expanding single antigen-specific effector cells to several billion in number with retention of antigen recognition *in vivo* are well known in the art. Such *in vitro* culture conditions typically use intermittent stimulation with antigen, often in the presence of cytokines (such as IL-2) and non-dividing feeder cells. As noted above, immunoreactive polypeptides as provided herein may be used to rapidly expand antigen-specific T cell cultures in order to generate a sufficient number of cells for immunotherapy. In particular, antigen-presenting cells, such as dendritic, macrophage or B cells, may be pulsed with immunoreactive polypeptides or transfected with one or more polynucleotides using standard techniques well known in the art. For example,

antigen-presenting cells can be transfected with a polynucleotide having a promoter appropriate for increasing expression in a recombinant virus or other expression system. Cultured effector cells for use in therapy must be able to grow and distribute widely, and to survive long term *in vivo*. Studies have shown that cultured effector cells can be 5 induced to grow *in vivo* and to survive long term in substantial numbers by repeated stimulation with antigen supplemented with IL-2 (see, for example, Cheever et al., *Immunological Reviews* 157:177, 1997).

Alternatively, a vector expressing a polypeptide recited herein may be introduced into stem cells taken from a patient and clonally propagated *in vitro* for 10 autologous transplant back into the same patient.

Routes and frequency of administration, as well as dosage, will vary from individual to individual, and may be readily established using standard techniques. In general, the pharmaceutical compositions and vaccines may be administered by injection (e.g., intracutaneous, intramuscular, intravenous or subcutaneous), intranasally 15 (e.g., by aspiration), orally or in the bed of a resected tumor. Preferably, between 1 and 10 doses may be administered over a 52 week period. Preferably, 6 doses are administered, at intervals of 1 month, and booster vaccinations may be given periodically thereafter. Alternate protocols may be appropriate for individual patients. A suitable dose is an amount of a compound that, when administered as described 20 above, is capable of promoting an anti-tumor immune response, and is at least 10-50% above the basal (*i.e.*, untreated) level. Such response can be monitored by measuring the anti-tumor antibodies in a patient or by vaccine-dependent generation of cytolytic effector cells capable of killing the patient's tumor cells *in vitro*. Such vaccines should also be capable of causing an immune response that leads to an improved clinical 25 outcome (e.g., more frequent remissions, complete or partial or longer disease-free survival) in vaccinated patients as compared to non-vaccinated patients. In general, for pharmaceutical compositions and vaccines comprising one or more polypeptides, the amount of each polypeptide present in a dose ranges from about 100 µg to 5 mg per kg of host. Suitable dose sizes will vary with the size of the patient, but will typically 30 range from about 0.1 mL to about 5 mL.

In general, an appropriate dosage and treatment regimen provides the active compound(s) in an amount sufficient to provide therapeutic and/or prophylactic benefit. Such a response can be monitored by establishing an improved clinical outcome (e.g., more frequent remissions, complete or partial, or longer disease-free survival) in treated patients as compared to non-treated patients. Increases in preexisting immune responses to an ovarian carcinoma antigen generally correlate with an improved clinical outcome. Such immune responses may generally be evaluated using standard proliferation, cytotoxicity or cytokine assays, which may be performed using samples obtained from a patient before and after treatment.

10

#### SCREENS FOR IDENTIFYING SECRETED OVARIAN CARCINOMA ANTIGENS

The present invention provides methods for identifying secreted tumor antigens. Within such methods, tumors are implanted into immunodeficient animals such as SCID mice and maintained for a time sufficient to permit secretion of tumor antigens into serum. In general, tumors may be implanted subcutaneously or within the gonadal fat pad of an immunodeficient animal and maintained for 1-9 months, preferably 1-4 months. Implantation may generally be performed as described in WO 97/18300. The serum containing secreted antigens is then used to prepare antisera in immunocompetent mice, using standard techniques and as described herein. Briefly, 20 50-100 µL of sera (pooled from three sets of immunodeficient mice, each set bearing a different SCID-derived human ovarian tumor) may be mixed 1:1 (vol:vol) with an appropriate adjuvant, such as RIBI-MPL or MPL + TDM (Sigma Chemical Co., St. Louis, MO) and injected intraperitoneally into syngeneic immunocompetent animals at monthly intervals for a total of 5 months. Antisera from animals immunized in such a 25 manner may be obtained by drawing blood after the third, fourth and fifth immunizations. The resulting antiserum is generally pre-cleared of *E. coli* and phage antigens and used (generally following dilution, such as 1:200) in a serological expression screen.

The library is typically an expression library containing cDNAs from one 30 or more tumors of the type that was implanted into SCID mice. This expression library may be prepared in any suitable vector, such as λ-screen (Novagen). cDNAs that

encode a polypeptide that reacts with the antiserum may be identified using standard techniques, and sequenced. Such cDNA molecules may be further characterized to evaluate expression in tumor and normal tissue, and to evaluate antigen secretion in patients.

5       The methods provided herein have advantages over other methods for tumor antigen discovery. In particular, all antigens identified by such methods should be secreted or released through necrosis of the tumor cells. Such antigens may be present on the surface of tumor cells for an amount of time sufficient to permit targeting and killing by the immune system, following vaccination.

10

#### METHODS FOR DETECTING CANCER

In general, a cancer may be detected in a patient based on the presence of one or more ovarian carcinoma proteins and/or polynucleotides encoding such proteins in a biological sample (such as blood, sera, urine and/or tumor biopsies) obtained from 15 the patient. In other words, such proteins may be used as markers to indicate the presence or absence of a cancer such as ovarian cancer. In addition, such proteins may be useful for the detection of other cancers. The binding agents provided herein generally permit detection of the level of protein that binds to the agent in the biological sample. Polynucleotide primers and probes may be used to detect the level of mRNA 20 encoding a tumor protein, which is also indicative of the presence or absence of a cancer. In general, an ovarian carcinoma-associated sequence should be present at a level that is at least three fold higher in tumor tissue than in normal tissue

There are a variety of assay formats known to those of ordinary skill in the art for using a binding agent to detect polypeptide markers in a sample. See, e.g., 25 Harlow and Lane, *Antibodies: A Laboratory Manual*, Cold Spring Harbor Laboratory, 1988. In general, the presence or absence of a cancer in a patient may be determined by (a) contacting a biological sample obtained from a patient with a binding agent; (b) detecting in the sample a level of polypeptide that binds to the binding agent; and (c) comparing the level of polypeptide with a predetermined cut-off value.

30       In a preferred embodiment, the assay involves the use of binding agent immobilized on a solid support to bind to and remove the polypeptide from the

remainder of the sample. The bound polypeptide may then be detected using a detection reagent that contains a reporter group and specifically binds to the binding agent/polypeptide complex. Such detection reagents may comprise, for example, a binding agent that specifically binds to the polypeptide or an antibody or other agent

5 that specifically binds to the binding agent, such as an anti-immunoglobulin, protein G, protein A or a lectin. Alternatively, a competitive assay may be utilized, in which a polypeptide is labeled with a reporter group and allowed to bind to the immobilized binding agent after incubation of the binding agent with the sample. The extent to which components of the sample inhibit the binding of the labeled polypeptide to the

10 binding agent is indicative of the reactivity of the sample with the immobilized binding agent. Suitable polypeptides for use within such assays include full length ovarian carcinoma proteins and portions thereof to which the binding agent binds, as described above.

The solid support may be any material known to those of ordinary skill

15 in the art to which the tumor protein may be attached. For example, the solid support may be a test well in a microtiter plate or a nitrocellulose or other suitable membrane. Alternatively, the support may be a bead or disc, such as glass, fiberglass, latex or a plastic material such as polystyrene or polyvinylchloride. The support may also be a magnetic particle or a fiber optic sensor, such as those disclosed, for example, in U.S.

20 Patent No. 5,359,681. The binding agent may be immobilized on the solid support using a variety of techniques known to those of skill in the art, which are amply described in the patent and scientific literature. In the context of the present invention, the term "immobilization" refers to both noncovalent association, such as adsorption, and covalent attachment (which may be a direct linkage between the agent and

25 functional groups on the support or may be a linkage by way of a cross-linking agent). Immobilization by adsorption to a well in a microtiter plate or to a membrane is preferred. In such cases, adsorption may be achieved by contacting the binding agent, in a suitable buffer, with the solid support for a suitable amount of time. The contact time varies with temperature, but is typically between about 1 hour and about 1 day. In

30 general, contacting a well of a plastic microtiter plate (such as polystyrene or polyvinylchloride) with an amount of binding agent ranging from about 10 ng to about

10 µg, and preferably about 100 ng to about 1 µg, is sufficient to immobilize an adequate amount of binding agent.

Covalent attachment of binding agent to a solid support may generally be achieved by first reacting the support with a bifunctional reagent that will react with both the support and a functional group, such as a hydroxyl or amino group, on the binding agent. For example, the binding agent may be covalently attached to supports having an appropriate polymer coating using benzoquinone or by condensation of an aldehyde group on the support with an amine and an active hydrogen on the binding partner (see, e.g., Pierce Immunotechnology Catalog and Handbook, 1991, at 10 A12-A13).

In certain embodiments, the assay is a two-antibody sandwich assay. This assay may be performed by first contacting an antibody that has been immobilized on a solid support, commonly the well of a microtiter plate, with the sample, such that polypeptides within the sample are allowed to bind to the immobilized antibody. 15 Unbound sample is then removed from the immobilized polypeptide-antibody complexes and a detection reagent (preferably a second antibody capable of binding to a different site on the polypeptide) containing a reporter group is added. The amount of detection reagent that remains bound to the solid support is then determined using a method appropriate for the specific reporter group.

20 More specifically, once the antibody is immobilized on the support as described above, the remaining protein binding sites on the support are typically blocked. Any suitable blocking agent known to those of ordinary skill in the art, such as bovine serum albumin or Tween 20<sup>TM</sup> (Sigma Chemical Co., St. Louis, MO). The immobilized antibody is then incubated with the sample, and polypeptide is allowed to 25 bind to the antibody. The sample may be diluted with a suitable diluent, such as phosphate-buffered saline (PBS) prior to incubation. In general, an appropriate contact time (*i.e.*, incubation time) is a period of time that is sufficient to detect the presence of polypeptide within a sample obtained from an individual with ovarian cancer. Preferably, the contact time is sufficient to achieve a level of binding that is at least 30 about 95% of that achieved at equilibrium between bound and unbound polypeptide. Those of ordinary skill in the art will recognize that the time necessary to achieve

equilibrium may be readily determined by assaying the level of binding that occurs over a period of time. At room temperature, an incubation time of about 30 minutes is generally sufficient.

Unbound sample may then be removed by washing the solid support 5 with an appropriate buffer, such as PBS containing 0.1% Tween 20<sup>TM</sup>. The second antibody, which contains a reporter group, may then be added to the solid support. Preferred reporter groups include those groups recited above.

The detection reagent is then incubated with the immobilized antibody-polypeptide complex for an amount of time sufficient to detect the bound polypeptide.

- 10 An appropriate amount of time may generally be determined by assaying the level of binding that occurs over a period of time. Unbound detection reagent is then removed and bound detection reagent is detected using the reporter group. The method employed for detecting the reporter group depends upon the nature of the reporter group. For radioactive groups, scintillation counting or autoradiographic methods are 15 generally appropriate. Spectroscopic methods may be used to detect dyes, luminescent groups and fluorescent groups. Biotin may be detected using avidin, coupled to a different reporter group (commonly a radioactive or fluorescent group or an enzyme). Enzyme reporter groups may generally be detected by the addition of substrate (generally for a specific period of time), followed by spectroscopic or other analysis of 20 the reaction products.

To determine the presence or absence of a cancer, such as ovarian cancer, the signal detected from the reporter group that remains bound to the solid support is generally compared to a signal that corresponds to a predetermined cut-off value. In one preferred embodiment, the cut-off value for the detection of a cancer is 25 the average mean signal obtained when the immobilized antibody is incubated with samples from patients without the cancer. In general, a sample generating a signal that is three standard deviations above the predetermined cut-off value is considered positive for the cancer. In an alternate preferred embodiment, the cut-off value is determined using a Receiver Operator Curve, according to the method of Sackett et al., *Clinical 30 Epidemiology: A Basic Science for Clinical Medicine*, Little Brown and Co., 1985, p. 106-7. Briefly, in this embodiment, the cut-off value may be determined from a plot

of pairs of true positive rates (*i.e.*, sensitivity) and false positive rates (100%-specificity) that correspond to each possible cut-off value for the diagnostic test result. The cut-off value on the plot that is the closest to the upper left-hand corner (*i.e.*, the value that encloses the largest area) is the most accurate cut-off value, and a sample generating a signal that is higher than the cut-off value determined by this method may be considered positive. Alternatively, the cut-off value may be shifted to the left along the plot, to minimize the false positive rate, or to the right, to minimize the false negative rate. In general, a sample generating a signal that is higher than the cut-off value determined by this method is considered positive for a cancer.

- 10       In a related embodiment, the assay is performed in a flow-through or strip test format, wherein the binding agent is immobilized on a membrane, such as nitrocellulose. In the flow-through test, polypeptides within the sample bind to the immobilized binding agent as the sample passes through the membrane. A second, labeled binding agent then binds to the binding agent-polypeptide complex as a solution 15 containing the second binding agent flows through the membrane. The detection of bound second binding agent may then be performed as described above. In the strip test format, one end of the membrane to which binding agent is bound is immersed in a solution containing the sample. The sample migrates along the membrane through a region containing second binding agent and to the area of immobilized binding agent.
- 20       Concentration of second binding agent at the area of immobilized antibody indicates the presence of a cancer. Typically, the concentration of second binding agent at that site generates a pattern, such as a line, that can be read visually. The absence of such a pattern indicates a negative result. In general, the amount of binding agent immobilized on the membrane is selected to generate a visually discernible pattern when the 25 biological sample contains a level of polypeptide that would be sufficient to generate a positive signal in the two-antibody sandwich assay, in the format discussed above. Preferred binding agents for use in such assays are antibodies and antigen-binding fragments thereof. Preferably, the amount of antibody immobilized on the membrane ranges from about 25 ng to about 1 $\mu$ g, and more preferably from about 50 ng to about 30 500 ng. Such tests can typically be performed with a very small amount of biological sample.

Of course, numerous other assay protocols exist that are suitable for use with the tumor proteins or binding agents of the present invention. The above descriptions are intended to be exemplary only. For example, it will be apparent to those of ordinary skill in the art that the above protocols may be readily modified to use 5 ovarian carcinoma polypeptides to detect antibodies that bind to such polypeptides in a biological sample. The detection of such ovarian carcinoma protein specific antibodies may correlate with the presence of a cancer.

- A cancer may also, or alternatively, be detected based on the presence of T cells that specifically react with an ovarian carcinoma protein in a biological sample.
- 10 10 Within certain methods, a biological sample comprising CD4<sup>+</sup> and/or CD8<sup>+</sup> T cells isolated from a patient is incubated with an ovarian carcinoma protein, a polynucleotide encoding such a polypeptide and/or an APC that expresses at least an immunogenic portion of such a polypeptide, and the presence or absence of specific activation of the T cells is detected. Suitable biological samples include, but are not limited to, isolated
  - 15 15 T cells. For example, T cells may be isolated from a patient by routine techniques (such as by Ficoll/Hypaque density gradient centrifugation of peripheral blood lymphocytes). T cells may be incubated *in vitro* for 2-9 days (typically 4 days) at 37°C with an ovarian carcinoma protein (*e.g.*, 5 - 25 µg/ml). It may be desirable to incubate another aliquot of a T cell sample in the absence of ovarian carcinoma protein to serve as a control. For
  - 20 20 CD4<sup>+</sup> T cells, activation is preferably detected by evaluating proliferation of the T cells. For CD8<sup>+</sup> T cells, activation is preferably detected by evaluating cytolytic activity. A level of proliferation that is at least two fold greater and/or a level of cytolytic activity that is at least 20% greater than in disease-free patients indicates the presence of a cancer in the patient.
  - 25 25 As noted above, a cancer may also, or alternatively, be detected based on the level of mRNA encoding an ovarian carcinoma protein in a biological sample. For example, at least two oligonucleotide primers may be employed in a polymerase chain reaction (PCR) based assay to amplify a portion of an ovarian carcinoma protein cDNA derived from a biological sample, wherein at least one of the oligonucleotide primers is 30 30 specific for (*i.e.*, hybridizes to) a polynucleotide encoding the ovarian carcinoma protein. The amplified cDNA is then separated and detected using techniques well

known in the art, such as gel electrophoresis. Similarly, oligonucleotide probes that specifically hybridize to a polynucleotide encoding an ovarian carcinoma protein may be used in a hybridization assay to detect the presence of polynucleotide encoding the tumor protein in a biological sample.

5 To permit hybridization under assay conditions, oligonucleotide primers and probes should comprise an oligonucleotide sequence that has at least about 60%, preferably at least about 75% and more preferably at least about 90%, identity to a portion of a polynucleotide encoding an ovarian carcinoma protein that is at least 10 nucleotides, and preferably at least 20 nucleotides, in length. Preferably,  
10 oligonucleotide primers and/or probes hybridize to a polynucleotide encoding a polypeptide described herein under moderately stringent conditions, as defined above. Oligonucleotide primers and/or probes which may be usefully employed in the diagnostic methods described herein preferably are at least 10-40 nucleotides in length. In a preferred embodiment, the oligonucleotide primers comprise at least 10 contiguous  
15 nucleotides, more preferably at least 15 contiguous nucleotides, of a DNA molecule having a sequence provided herein. Techniques for both PCR based assays and hybridization assays are well known in the art (see, for example, Mullis et al., *Cold Spring Harbor Symp. Quant. Biol.*, 51:263, 1987; Erlich ed., *PCR Technology*, Stockton Press, NY, 1989).

20 One preferred assay employs RT-PCR, in which PCR is applied in conjunction with reverse transcription. Typically, RNA is extracted from a biological sample such as a biopsy tissue and is reverse transcribed to produce cDNA molecules. PCR amplification using at least one specific primer generates a cDNA molecule, which may be separated and visualized using, for example, gel electrophoresis. Amplification  
25 may be performed on biological samples taken from a test patient and from an individual who is not afflicted with a cancer. The amplification reaction may be performed on several dilutions of cDNA spanning two orders of magnitude. A two-fold or greater increase in expression in several dilutions of the test patient sample as compared to the same dilutions of the non-cancerous sample is typically considered  
30 positive.

In another embodiment, ovarian carcinoma proteins and polynucleotides encoding such proteins may be used as markers for monitoring the progression of cancer. In this embodiment, assays as described above for the diagnosis of a cancer may be performed over time, and the change in the level of reactive polypeptide(s) 5 evaluated. For example, the assays may be performed every 24-72 hours for a period of 6 months to 1 year, and thereafter performed as needed. In general, a cancer is progressing in those patients in whom the level of polypeptide detected by the binding agent increases over time. In contrast, the cancer is not progressing when the level of reactive polypeptide either remains constant or decreases with time.

10            Certain *in vivo* diagnostic assays may be performed directly on a tumor. One such assay involves contacting tumor cells with a binding agent. The bound binding agent may then be detected directly or indirectly via a reporter group. Such binding agents may also be used in histological applications. Alternatively, polynucleotide probes may be used within such applications.

15            As noted above, to improve sensitivity, multiple ovarian carcinoma protein markers may be assayed within a given sample. It will be apparent that binding agents specific for different proteins provided herein may be combined within a single assay. Further, multiple primers or probes may be used concurrently. The selection of tumor protein markers may be based on routine experiments to determine combinations 20 that results in optimal sensitivity. In addition, or alternatively, assays for tumor proteins provided herein may be combined with assays for other known tumor antigens.

#### DIAGNOSTIC KITS

The present invention further provides kits for use within any of the 25 above diagnostic methods. Such kits typically comprise two or more components necessary for performing a diagnostic assay. Components may be compounds, reagents, containers and/or equipment. For example, one container within a kit may contain a monoclonal antibody or fragment thereof that specifically binds to an ovarian carcinoma protein. Such antibodies or fragments may be provided attached to a support 30 material, as described above. One or more additional containers may enclose elements, such as reagents or buffers, to be used in the assay. Such kits may also, or alternatively,

contain a detection reagent as described above that contains a reporter group suitable for direct or indirect detection of antibody binding.

Alternatively, a kit may be designed to detect the level of mRNA encoding an ovarian carcinoma protein in a biological sample. Such kits generally 5 comprise at least one oligonucleotide probe or primer, as described above, that hybridizes to a polynucleotide encoding an ovarian carcinoma protein. Such an oligonucleotide may be used, for example, within a PCR or hybridization assay. Additional components that may be present within such kits include a second oligonucleotide and/or a diagnostic reagent or container to facilitate the detection of a 10 polynucleotide encoding an ovarian carcinoma protein.

The following Examples are offered by way of illustration and not by way of limitation.

## EXAMPLES

Example 1Identification of Representative Ovarian Carcinoma Protein cDNAs

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This Example illustrates the identification of cDNA molecules encoding ovarian carcinoma proteins.

Anti-SCID mouse sera (generated against sera from SCID mice carrying late passage ovarian carcinoma) was pre-cleared of E. coli and phage antigens and used 10 at a 1:200 dilution in a serological expression screen. The library screened was made from a SCID-derived human ovarian tumor (OV9334) using a directional RH oligo(dT) priming cDNA library construction kit and the λScreen vector (Novagen). A bacteriophage lambda screen was employed. Approximately 400,000 pfu of the amplified OV9334 library were screened.

15

196 positive clones were isolated. Certain sequences that appear to be novel are provided in Figures 1A-1S and SEQ ID NOs:1 to 71. Three complete insert sequences are shown in Figures 2A-2C (SEQ ID NOs:72 to 74). Other clones having known sequences are presented in Figures 15A-15EEE (SEQ ID NOs:82 to 310). Database searches identified the following sequences that were substantially identical to 20 the sequences presented in Figures 15A-15EEE.

25

These clones were further characterized using microarray technology to determine mRNA expression levels in a variety of tumor and normal tissues. Such analyses were performed using a Synteni (Palo Alto, CA) microarray, according to the manufacturer's instructions. PCR amplification products were arrayed on slides, with each product occupying a unique location in the array. mRNA was extracted from the tissue sample to be tested, reverse transcribed and fluorescent-labeled cDNA probes were generated. The microarrays were probed with the labeled cDNA probes and the slides were scanned to measure fluorescence intensity. Data was analyzed using Synteni's provided GEMtools software. The results for one clone (13695, also referred 30 to as O8E) are shown in Figure 3.

Example 2Identification of Ovarian Carcinoma cDNAs using Microarray Technology

5        This Example illustrates the identification of ovarian carcinoma polynucleotides by PCR subtraction and microarray analysis. Microarrays of cDNAs were analyzed for ovarian tumor-specific expression using a Synteni (Palo Alto, CA) microarray, according to the manufacturer's instructions (and essentially as described by  
10 Schena et al., *Proc. Natl. Acad. Sci. USA* 93:10614-10619, 1996 and Heller et al., *Proc. Natl. Acad. Sci. USA* 94:2150-2155, 1997).

A PCR subtraction was performed using a tester comprising cDNA of four ovarian tumors (three of which were metastatic tumors) and a driver of cDNA from five normal tissues (adrenal gland, lung, pancreas, spleen and brain). cDNA fragments  
15 recovered from this subtraction were subjected to DNA microarray analysis where the fragments were PCR amplified, adhered to chips and hybridized with fluorescently labeled probes derived from mRNAs of human ovarian tumors and a variety of normal human tissues. In this analysis, the slides were scanned and the fluorescence intensity was measured, and the data were analyzed using Synteni's GEMtools software. In  
20 general, sequences showing at least a 5-fold increase in expression in tumor cells (relative to normal cells) were considered ovarian tumor antigens. The fluorescent results were analyzed and clones that displayed increased expression in ovarian tumors were further characterized by DNA sequencing and database searches to determine the novelty of the sequences.

25        Using such assays, an ovarian tumor antigen was identified that is a splice fusion between the human T-cell leukemia virus type I oncprotein TAX (see Jin et al., *Cell* 93:81-91, 1998) and an extracellular matrix protein called osteonectin. A splice junction sequence exists at the fusion point. The sequence of this clone is presented in Figure 4 and SEQ ID NO:75. Osteonectin, unspliced and unaltered, was  
30 also identified from such assays independently.

Further clones identified by this method are referred to herein as 3f, 6b, 8e, 8h, 12c and 12h. Sequences of these clones are shown in Figures 5 to 9 and SEQ ID NOs:76 to 81. Microarray analyses were performed as described above, and are presented in Figures 10 to 14. A full length sequence encompassing clones 3f, 6b, 8e and 12h was obtained by screening an ovarian tumor (SCID-derived) cDNA library. This 2996 base pair sequence (designated O772P) is presented in SEQ ID NO:311, and the encoded 914 amino acid protein sequence is shown in SEQ ID NO:312. PSORT analysis indicates a Type 1a transmembrane protein localized to the plasma membrane.

In addition to certain of the sequences described above, this screen  
10 identified the following sequences:

Sequence	Comments
OV4vG11 (SEQ ID NO:313)	human clone 1119D9 on chromosome 20p12
OV4vB11 (SEQ ID NO:314)	human UWGC:y14c094 from chromosome 6p21
OV4vD9 (SEQ ID NO:315)	human clone 1049G16 chromosome 20q12-13.2
OV4vD5 (SEQ ID NO:316)	human KIAA0014 gene
OV4vC2 (SEQ ID NO:317)	human KIAA0084 gene
OV4vF3 (SEQ ID NO:318)	human chromosome 19 cosmid R31167
OV4VC1 (SEQ ID NO:319)	novel
OV4vH3 (SEQ ID NO:320)	novel
OV4vD2 (SEQ ID NO:321)	novel
O815P (SEQ ID NO:322)	novel
OV4vC12 (SEQ ID NO:323)	novel
OV4vA4 (SEQ ID NO:324)	novel
OV4vA3 (SEQ ID NO:325)	novel
OV4v2A5 (SEQ ID NO:326)	novel
O819P (SEQ ID NO:327)	novel
O818P (SEQ ID NO:328)	novel
O817P (SEQ ID NO:329)	novel
O816P (SEQ ID NO:330)	novel
Ov4vC5 (SEQ ID NO:331)	novel

Sequence	Comments
21721 (SEQ ID NO:332)	human lumican
21719 (SEQ ID NO:333)	human retinoic acid-binding protein II
21717 (SEQ ID NO:334)	human 26S proteasome ATPase subunit
21654 (SEQ ID NO:335)	human copine I
21627 (SEQ ID NO:336)	human neuron specific gamma-2 enolase
21623 (SEQ ID NO:337)	human geranylgeranyl transferase II
21621 (SEQ ID NO:338)	human cyclin-dependent protein kinase
21616 (SEQ ID NO:339)	human prepro-megakaryocyte potentiating factor
21612 (SEQ ID NO:340)	human UPH1
21558 (SEQ ID NO:341)	human RalGDS-like 2 (RGL2)
21555 (SEQ ID NO:342)	human autoantigen P542
21548 (SEQ ID NO:343)	human actin-related protein (ARP2)
21462 (SEQ ID NO:344)	human huntingtin interacting protein
21441 (SEQ ID NO:345)	human 90K product (tumor associated antigen)
21439 (SEQ ID NO:346)	human guanine nucleotide regulator protein (tim1)
21438 (SEQ ID NO:347)	human Ku autoimmune (p70/p80) antigen
21237 (SEQ ID NO:348)	human S-laminin
21436 (SEQ ID NO:349)	human ribophorin I
21435 (SEQ ID NO:350)	human cytoplasmic chaperonin hTRiC5
21425 (SEQ ID NO:351)	human EMX2
21423 (SEQ ID NO:352)	human p87/p89 gene
21419 (SEQ ID NO:353)	human HPBRII-7
21252 (SEQ ID NO:354)	human T1-227H
21251 (SEQ ID NO:355)	human cullin I
21247 (SEQ ID NO:356)	kunitz type protease inhibitor (KOP)
21244-1 (SEQ ID NO:357)	human protein tyrosine phosphatase receptor F (PTPRF)
21718 (SEQ ID NO:358)	human LTR repeat
OV2-90 (SEQ ID NO:359)	novel

Sequence	Comments
Human zinc finger (SEQ ID NO:360)	
Human polyA binding protein (SEQ ID NO:361)	
Human pleitrophin (SEQ ID NO:362)	
Human PAC clone 278C19 (SEQ ID NO:363)	
Human LLRep3 (SEQ ID NO:364)	
Human Kunitz type protease inhib (SEQ ID NO:365)	
Human KIAA0106 gene (SEQ ID NO:366)	
Human keratin (SEQ ID NO:367)	
Human HIV-1TAR (SEQ ID NO:368)	
Human glia derived nexin (SEQ ID NO:369)	
Human fibronectin (SEQ ID NO:370)	
Human ECMproBM40 (SEQ ID NO:371)	
Human collagen (SEQ ID NO:372)	
Human alpha enolase (SEQ ID NO:373)	
Human aldolase (SEQ ID NO:374)	
Human transf growth factor BIG H3 (SEQ ID NO:375)	
Human SPARC osteonectin (SEQ ID NO:376)	
Human SLP1 leucocyte protease (SEQ ID NO:377)	
Human mitochondrial ATP synth (SEQ ID NO:378)	
Human DNA seq clone 461P17 (SEQ ID NO:379)	
Human dbpB pro Y box (SEQ ID NO:380)	
Human 40 kDa keratin (SEQ ID NO:381)	
Human arginosuccinate synth (SEQ ID NO:382)	
Human acidic ribosomal phosphoprotein (SEQ ID NO:383)	
Human colon carcinoma laminin binding pro (SEQ ID NO:384)	

This screen further identified multiple forms of the clone O772P, referred to herein as 21013, 21003 and 21008. PSORT analysis indicates that 21003 (SEQ ID NO:386; translated as SEQ ID NO:389) and 21008 (SEQ ID NO:387; 5 translated as SEQ ID NO:390) represent Type 1a transmembrane protein forms of

O772P. 21013 (SEQ ID NO:385; translated as SEQ ID NO:388) appears to be a truncated form of the protein and is predicted by PSORT analysis to be a secreted protein.

Additional sequence analysis resulted in a full length clone for O8E  
5 (2627 bp, which agrees with the message size observed by Northern analysis; SEQ ID NO:391). This nucleotide sequence was obtained as follows: the original O8E sequence (OrigO8Econs) was found to overlap by 33 nucleotides with a sequence from an EST clone (IMAGE#1987589). This clone provided 1042 additional nucleotides upstream of the original O8E sequence. The link between the EST and O8E was confirmed by  
10 sequencing multiple PCR fragments generated from an ovary primary tumor library using primers to the unique EST and the O8E sequence (ESTxO8EPCR). Full length status was further indicated when anchored PCR from the ovary tumor library gave several clones (AnchoredPCR cons) that all terminated upstream of the putative start methionine, but failed to yield any additional sequence information. Figure 16 presents  
15 a diagram that illustrates the location of each partial sequence within the full length O8E sequence.

Two protein sequences may be translated from the full length O8E. For "a" (SEQ ID NO:393) begins with a putative start methionine. A second form "b" (SEQ ID NO:392) includes 27 additional upstream residues to the 5' end of the nucleotide  
20 sequence.

From the foregoing it will be appreciated that, although specific embodiments of the invention have been described herein for purposes of illustration, various modifications may be made without deviating from the spirit and scope of the invention. Accordingly, the invention is not limited except as by the appended claims.  
25

#### SUMMARY OF SEQUENCE LISTING

SEQ ID NOs:1-71 are ovarian carcinoma antigen polynucleotides shown in Figures 1A-1S.

SEQ ID NOs:72-74 are ovarian carcinoma antigen polynucleotides  
30 shown in Figures 2A-2C.

SEQ ID NO:75 is the ovarian carcinoma polynucleotide 3g (Figure 4).

SEQ ID NO:76 is the ovarian carcinoma polynucleotide 3f (Figure 5).

SEQ ID NO:77 is the ovarian carcinoma polynucleotide 6b (Figure 6).

SEQ ID NO:78 is the ovarian carcinoma polynucleotide 8e (Figure 7A).

SEQ ID NO:79 is the ovarian carcinoma polynucleotide 8h (Figure 7B).

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SEQ ID NO:80 is the ovarian carcinoma polynucleotide 12e (Figure 8).

SEQ ID NO:81 is the ovarian carcinoma polynucleotide 12h (Figure 9).

SEQ ID NOs:82-310 are ovarian carcinoma antigen polynucleotides shown in Figures 15A-15EEE.

SEQ ID NO:311 is a full length sequence of ovarian carcinoma  
10 polynucleotide O772P.

SEQ ID NO:312 is the O772P amino acid sequence.

SEQ ID NOs:313-384 are ovarian carcinoma antigen polynucleotides.

SEQ ID NOs:385-390 present sequences of O772P forms.

SEQ ID NO:391 is a full length sequence of ovarian carcinoma  
15 polynucleotide O8E.

SEQ ID NOs:392-393 are protein sequences encoded by O8E.

## CLAIMS

1. An isolated polypeptide comprising at least an immunogenic portion of an ovarian carcinoma protein, or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

- (a) polynucleotides recited in any one of SEQ ID NOs:1-81, 313-331, 359, 366, 379, 385-387 or 391; and
- (b) complements of the foregoing polynucleotides.

2. A polypeptide according to claim 1, wherein the polypeptide comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

- (a) polynucleotides recited in any one of 1-81, 313-331, 359, 366, 379, 385-387 or 391; and
- (b) complements of such polynucleotides.

3. An isolated polynucleotide encoding at least 5 amino acid residues of a polypeptide according to claim 1 polypeptide comprising at least an immunogenic portion of an ovarian carcinoma protein, or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

- (a) polynucleotides recited in any one of SEQ ID NOs:1-81, 319-331, 359, 385-387 or 391; and
- (b) complements of the foregoing polynucleotides

4. A polynucleotide according to claim 3, wherein the polynucleotide encodes an immunogenic portion of the polypeptide.

5. A polynucleotide according to claim 3, wherein the polynucleotide comprises a sequence recited in any one of SEQ ID NOs:1-81, 319-331, 359, 385-387, 391 or a complement of any of the foregoing sequences.

6. An isolated polynucleotide complementary to a polynucleotide according to claim 3.

7. An expression vector comprising a polynucleotide according to claim 3 or claim 6.

8. A host cell transformed or transfected with an expression vector according to claim 7.

9. A pharmaceutical composition comprising a polypeptide according to claim 1, in combination with a physiologically acceptable carrier.

10. A pharmaceutical composition according to claim 9, wherein the polypeptide comprises an amino acid sequence encoded by a polynucleotide that comprises a sequence recited in any one of SEQ ID NOs:1-81, 313-331, 359, 366, 379, 385-387 or 391.

11. A vaccine comprising a polypeptide according to claim 1, in combination with a non-specific immune response enhancer.

12. A vaccine according to claim 11, wherein the polypeptide comprises an amino acid sequence encoded by a polynucleotide that comprises a sequence recited in any one of SEQ ID NOs:1-81, 313-331, 359, 366, 379, 385-387 or 391.

13. A pharmaceutical composition comprising:

- (a) a polynucleotide encoding an ovarian carcinoma polypeptide, wherein the polypeptide comprises at least an immunogenic portion of an ovarian carcinoma protein or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:
- (i) polynucleotides recited in any one of SEQ ID NOs:1-81, 319-331, 359, 385-387 or 391; and
- (ii) complements of the foregoing polynucleotides; and
- (b) a physiologically acceptable carrier.

14. A pharmaceutical composition according to claim 13, wherein the polynucleotide comprises a sequence recited in any one of SEQ ID NOs:1-81, 319-331, 359, 385-387, 391 or a complement of any of the foregoing sequences.

15. A vaccine comprising:

- (a) a polynucleotide encoding an ovarian carcinoma polypeptide, wherein the polypeptide comprises at least an immunogenic portion of an ovarian carcinoma protein or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:
- (i) polynucleotides recited in any one of SEQ ID NOs:1-81, 313-331, 359, 366, 379, 385-387 or 391; and
- (ii) complements of the foregoing polynucleotides; and

16. A vaccine according to claim 15, wherein the polynucleotide comprises a sequence recited in any one of SEQ ID NOs:1-81, 319-331, 359, 385-387 or 391.

17. A pharmaceutical composition comprising:

(a) an antibody that specifically binds to an ovarian carcinoma protein, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

(i) polynucleotides recited in any one of SEQ ID NOs:1-81, 313-331, 359, 366, 379, 385-387 or 391; and

(ii) complements of such polynucleotides; and

(b) a physiologically acceptable carrier.

18. A method for inhibiting the development of ovarian cancer in a patient, comprising administering to a patient an effective amount of an agent selected from the group consisting of:

(a) an ovarian carcinoma polypeptide comprising at least an immunogenic portion of an ovarian carcinoma protein or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

(i) polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and

(ii) complements of such polynucleotides;

(b) a polynucleotide encoding a polypeptide as recited in (a); and

(c) an antibody that specifically binds to an ovarian carcinoma protein that comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

(i) polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and

(ii) complements of such polynucleotides;

and thereby inhibiting the development of ovarian cancer in the patient.

19. A method according to claim 18, wherein the agent is present within a pharmaceutical composition according to any one of claims 9, 13 or 17.
20. A method according to claim 18, wherein the agent is present within a vaccine according to any one of claims 11, 15 or 18.
21. A fusion protein comprising at least one polypeptide according to claim 1.
22. A polynucleotide encoding a fusion protein according to claim 21.
23. A pharmaceutical composition comprising a fusion protein according to claim 21 in combination with a physiologically acceptable carrier.
24. A vaccine comprising a fusion protein according to claim 21 in combination with a non-specific immune response enhancer.
25. A pharmaceutical composition comprising a polynucleotide according to claim 22 in combination with a physiologically acceptable carrier.
26. A vaccine comprising a polynucleotide according to claim 22 in combination with a non-specific immune response enhancer.
27. A method for inhibiting the development of ovarian cancer in a patient, comprising administering to a patient an effective amount of a pharmaceutical composition according to claim 23 or claim 25.
28. A method for inhibiting the development of ovarian cancer in a patient, comprising administering to a patient an effective amount of a vaccine according to claim 23 or claim 26.

29. A pharmaceutical composition, comprising:

- (a) an antigen presenting cell that expresses an ovarian carcinoma polypeptide comprising at least an immunogenic portion of an ovarian carcinoma protein or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:
  - (i) polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and
  - (ii) complements of such polynucleotides; and
- (b) a pharmaceutically acceptable carrier or excipient.

30. A vaccine, comprising:

- (a) an antigen presenting cell that expresses an ovarian carcinoma polypeptide comprising at least an immunogenic portion of an ovarian carcinoma protein or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:
  - (i) polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and
  - (ii) complements of such polynucleotides; and
- (b) a non-specific immune response enhancer.

31. A vaccine comprising:

- (a) an anti-idiotypic antibody or antigen-binding fragment thereof that is specifically bound by an antibody that specifically binds to an ovarian carcinoma protein that comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:
  - (i) polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and

- (ii) complements of such polynucleotides; and
- (b) non-specific immune response enhancer.

32. A vaccine according to claim 30 or claim 31, wherein the immune response enhancer is an adjuvant.

33. A pharmaceutical composition, comprising:

(a) a T cell that specifically reacts with an ovarian carcinoma polypeptide comprising at least an immunogenic portion of an ovarian carcinoma protein or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

- (i) polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and
- (ii) complements of such polynucleotides; and

- (b) a physiologically acceptable carrier.

34. A vaccine, comprising:

(a) a T cell that specifically reacts with an ovarian carcinoma polypeptide comprising at least an immunogenic portion of an ovarian carcinoma protein or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

- (i) polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and
- (ii) complements of such polynucleotides; and

- (b) a non-specific immune response enhancer.

35. A method for inhibiting the development of ovarian cancer in a patient, comprising administering to the patient an effective amount of a pharmaceutical composition according to claim 29 or claim 33.

36. A method for inhibiting the development of ovarian cancer in a patient, comprising administering to the patient an effective amount of a vaccine according to any one of claims 30, 31 or 34.

37. A method for stimulating and/or expanding T cells, comprising contacting T cells with:

(a) an ovarian carcinoma polypeptide comprising at least an immunogenic portion of an ovarian carcinoma protein or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

(i) polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and

(ii) complements of such polynucleotides;

(b) a polynucleotide encoding such a polypeptide; and/or

(c) an antigen presenting cell that expresses such a polypeptide under conditions and for a time sufficient to permit the stimulation and/or expansion of T cells.

38. A method according to claim 37, wherein the T cells are cloned prior to expansion.

39. A method for stimulating and/or expanding T cells in a mammal, comprising administering to a mammal a pharmaceutical composition comprising:

(a) one or more of:

(i) an ovarian carcinoma polypeptide comprising at least an immunogenic portion of an ovarian carcinoma protein or a variant thereof that differs in one

or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and

complements of such polynucleotides;

(ii) a polynucleotide encoding an ovarian carcinoma polypeptide;

or

(iii) an antigen-presenting cell that expresses an ovarian carcinoma polypeptide; and

(b) a physiologically acceptable carrier or excipient;

and thereby stimulating and/or expanding T cells in a mammal.

40. A method for stimulating and/or expanding T cells in a mammal, comprising administering to a mammal a vaccine comprising:

(a) one or more of:

(i) an ovarian carcinoma polypeptide comprising at least an immunogenic portion of an ovarian carcinoma protein or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and

complements of such polynucleotides;

(ii) a polynucleotide encoding an ovarian carcinoma polypeptide;

or

(iii) an antigen-presenting cell that expresses an ovarian carcinoma polypeptide; and

(b) a non-specific immune response enhancer;  
and thereby stimulating and/or expanding T cells in a mammal.

41. A method for inhibiting the development of ovarian cancer in a patient, comprising administering to a patient T cells prepared according to the method of claim 39 or claim 40.

42. A method for inhibiting the development of ovarian cancer in a patient, comprising the steps of:

(a) incubating CD4<sup>+</sup> T cells isolated from a patient with one or more of:  
(i) an ovarian carcinoma polypeptide comprising at least an immunogenic portion of an ovarian carcinoma protein or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and

complements of such polynucleotides;

(ii) a polynucleotide encoding an ovarian carcinoma polypeptide;

or

(iii) an antigen-presenting cell that expresses an ovarian carcinoma polypeptide;

such that T cells proliferate; and

(b) administering to the patient an effective amount of the proliferated T cells, and therefrom inhibiting the development of ovarian cancer in the patient.

43. A method for inhibiting the development of ovarian cancer in a patient, comprising the steps of:

(a) incubating CD4<sup>+</sup> T cells isolated from a patient with one or more of:

(i) an ovarian carcinoma polypeptide comprising at least an immunogenic portion of an ovarian carcinoma protein or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and

complements of such polynucleotides;

(ii) a polynucleotide encoding an ovarian carcinoma polypeptide;

or

(iii) an antigen-presenting cell that expresses an ovarian carcinoma polypeptide;

such that T cells proliferate;

(b) cloning one or more proliferated cells; and

(c) administering to the patient an effective amount of the cloned T cells.

44. A method for inhibiting the development of ovarian cancer in a patient, comprising the steps of:

(a) incubating CD8<sup>+</sup> T cells isolated from a patient with one or more of:

(i) an ovarian carcinoma polypeptide comprising at least an immunogenic portion of an ovarian carcinoma protein or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and

complements of such polynucleotides;

(ii) a polynucleotide encoding an ovarian carcinoma polypeptide;

or

(iii) an antigen-presenting cell that expresses an ovarian carcinoma polypeptide;

such that T cells proliferate; and

(b) administering to the patient an effective amount of the proliferated T cells, and therefrom inhibiting the development of ovarian cancer in the patient.

45. A method for inhibiting the development of ovarian cancer in a patient, comprising the steps of:

(a) incubating CD8<sup>+</sup> T cells isolated from a patient with one or more of:

(i) an ovarian carcinoma polypeptide comprising at least an immunogenic portion of an ovarian carcinoma protein or a variant thereof that differs in one or more substitutions, deletions, additions and/or insertions such that the ability of the variant to react with antigen-specific antisera is not substantially diminished, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and

complements of such polynucleotides;

(ii) a polynucleotide encoding an ovarian carcinoma polypeptide;

or

(iii) an antigen-presenting cell that expresses an ovarian carcinoma polypeptide;

such that the T cells proliferate;

(b) cloning one or more proliferated cells ; and

(c) administering to the patient an effective amount of the cloned T cells.

46. A method for identifying a secreted tumor antigen, comprising the steps of:

- (a) implanting tumor cells in an immunodeficient mammal;
- (b) obtaining serum from the immunodeficient mammal after a time sufficient to permit secretion of tumor antigens into the serum;
- (c) immunizing an immunocompetent mammal with the serum;
- (d) obtaining antiserum from the immunocompetent mammal; and
- (e) screening a tumor expression library with the antiserum, and therefrom identifying a secreted tumor antigen.

47. A method according to claim 46, wherein the immunodeficient mammal is a SCID mouse and wherein the immunocompetent mammal is an immunocompetent mouse. ....

48. A method for identifying a secreted ovarian carcinoma antigen, comprising the steps of:

- (a) implanting ovarian carcinoma cells in a SCID mouse;
- (b) obtaining serum from the SCID mouse after a time sufficient to permit secretion of ovarian carcinoma antigens into the serum;
- (c) immunizing an immunocompetent mouse with the serum;
- (d) obtaining antiserum from the immunocompetent mouse; and
- (e) screening an ovarian carcinoma expression library with the antiserum, and therefrom identifying a secreted ovarian carcinoma antigen.

49. A method for determining the presence or absence of a cancer in a patient, comprising the steps of:

- (a) contacting a biological sample obtained from a patient with a binding agent that binds to an ovarian carcinoma protein, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

- (i) polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and
  - (ii) complements of the foregoing polynucleotides;
- (b) detecting in the sample an amount of polypeptide that binds to the binding agent; and
  - (c) comparing the amount of polypeptide to a predetermined cut-off value, and therefrom determining the presence or absence of a cancer in the patient.

50. A method according to claim 49, wherein the binding agent is an antibody.

51. A method according to claim 50, wherein the antibody is a monoclonal antibody.

52. A method according to claim 49, wherein the cancer is ovarian cancer.

53. A method for monitoring the progression of a cancer in a patient, comprising the steps of:

- (a) contacting a biological sample obtained from a patient at a first point in time with a binding agent that binds to an ovarian carcinoma protein, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:
  - (i) polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and
    - (ii) complements of the foregoing polynucleotides;
- (b) detecting in the sample an amount of polypeptide that binds to the binding agent;
- (c) repeating steps (a) and (b) using a biological sample obtained from the patient at a subsequent point in time; and

(d) comparing the amount of polypeptide detected in step (c) to the amount detected in step (b) and therefrom monitoring the progression of the cancer in the patient.

54. A method according to claim 53, wherein the binding agent is an antibody.

55. A method according to claim 54, wherein the antibody is a monoclonal antibody.

56. A method according to claim 53, wherein the cancer is ovarian cancer.

57. A method for determining the presence or absence of a cancer in a patient, comprising the steps of:

(a) contacting a biological sample obtained from a patient with an oligonucleotide that hybridizes to a polynucleotide that encodes an ovarian carcinoma protein, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

(i) polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and

(ii) complements of the foregoing polynucleotides;

(b) detecting in the sample an amount of a polynucleotide that hybridizes to the oligonucleotide; and

(c) comparing the amount of polynucleotide that hybridizes to the oligonucleotide to a predetermined cut-off value, and therefrom determining the presence or absence of a cancer in the patient.

58. A method according to claim 57, wherein the amount of polynucleotide that hybridizes to the oligonucleotide is determined using a polymerase chain reaction.

59. A method according to claim 57, wherein the amount of polynucleotide that hybridizes to the oligonucleotide is determined using a hybridization assay.

60. A method for monitoring the progression of a cancer in a patient, comprising the steps of:

(a) contacting a biological sample obtained from a patient with an oligonucleotide that hybridizes to a polynucleotide that encodes an ovarian carcinoma protein, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

(i) polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and

(ii) complements of the foregoing polynucleotides;

(b) detecting in the sample an amount of a polynucleotide that hybridizes to the oligonucleotide;

(c) repeating steps (a) and (b) using a biological sample obtained from the patient at a subsequent point in time; and

(d) comparing the amount of polynucleotide detected in step (c) to the amount detected in step (b) and therefrom monitoring the progression of the cancer in the patient.

61. A method according to claim 60, wherein the amount of polynucleotide that hybridizes to the oligonucleotide is determined using a polymerase chain reaction.

62. A method according to claim 60, wherein the amount of polynucleotide that hybridizes to the oligonucleotide is determined using a hybridization assay.

63. A diagnostic kit, comprising:

(a) one or more antibodies or antigen-binding fragments thereof that specifically bind to an ovarian carcinoma protein that comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

(i) polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and

- (ii) complements of the foregoing polynucleotides; and  
(b) a detection reagent comprising a reporter group.

64. A kit according to claim 63, wherein the antibodies are immobilized on a solid support.

65. A kit according to claim 63, wherein the solid support comprises nitrocellulose, latex or a plastic material.

66. A kit according to claim 63, wherein the detection reagent comprises an anti-immunoglobulin, protein G, protein A or lectin.

67. A kit according to claim 63, wherein the reporter group is selected from the group consisting of radioisotopes, fluorescent groups, luminescent groups, enzymes, biotin and dye particles.

68. A diagnostic kit, comprising:

(a) an oligonucleotide comprising 10 to 40 nucleotides that hybridize under moderately stringent conditions to a polynucleotide that encodes an ovarian carcinoma protein, wherein the ovarian carcinoma protein comprises an amino acid sequence that is encoded by a polynucleotide sequence selected from the group consisting of:

- (i) polynucleotides recited in any one of SEQ ID NOs:1-387 or 391; and  
(ii) complements of the foregoing polynucleotides; and  
(b) a diagnostic reagent for use in a polymerase chain reaction or hybridization assay.

## SEQUENCE LISTING

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<120> COMPOSITIONS AND METHODS FOR THE THERAPY AND  
DIAGNOSIS OF OVARIAN CANCER

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<140> PCT

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&lt;210&gt; 19

&lt;211&gt; 1043

&lt;212&gt; DNA

&lt;213&gt; Homo sapien

&lt;400&gt; 19

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						1043

&lt;210&gt; 20

&lt;211&gt; 448

&lt;212&gt; DNA

&lt;213&gt; Homo sapien

&lt;400&gt; 20

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<212> DNA	
<213> Homo sapien	
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<210> 24
<211> 531
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(531)
<223> n = A,T,C or G

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atttcctgc cacagccctcc cgagtagctg ggattacagg tgcccgccac cacacccagc          180
taattttat attttttaga aagacagggt ttccccatgt tggccaggct ggtcttgaac          240
ttctgaccctc aggtgatcca cctgcctcg cctcccaaag tggccaggatt acagggcgtga          300
gctaccccggt cctggccagc cactggagtt taaaggacag tcatgttggc tccagcctaa          360
ggcggcattt tcccccatca gaaagccgcg ggctccctgta cctccaaaata gggcacctgt          420
aaagtcaagtc agtgaagtct ctgtctaaac tggccacccg gggccattgg cttctgacac          480
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<210> 25
<211> 471
<212> DNA
<213> Homo sapien

<220>
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<222> (1)...(471)
<223> n = A,T,C or G

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ccctgaatca ttgaaaaag gccggcggtgg cgacagccgc gacctaggaa tcgatctgg          120
gggacttggg gagcgtgcag agacctctag ctgcggccgc agggacctcc cgccggatg          180
cctggggagc agatggaccc tactggaaatg cagttggatt cagatttctc tcagcaagat          240
actccttgcct tgataattga agattctcag cctgaaagcc aggttctaga ggatgattct          300
ggttctcaact tcagttatgtt atctcgacac cttccataatc tccagacgca caaaagaaat          360
cctgtgttgg atgttngtca caatccttga acaaacaatg ggagaagaac gaggagaccg          420
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<210> 26
<211> 541
<212> DNA
<213> Homo sapien

<400> 26
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atactgtttt attgtctgg tcaaacaatg cttctgttgt tgacaaaacc tcaggctctg          180
gtgacttctg aatctgcagt ccactttcca taagttcttgcagacacaac tgttcttttgc          240
cttccatagc agcaacatg gctttggggc taaaaggat gtcctctgac cttgcagggt          300
gtggatttttgc ctcttttaca acatgtacat cttactggg ctgtgtgtc acagggatgt          360
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g	541
<210> 27	
<211> 461	
<212> DNA	
<213> Homo sapien	
<220>	
<221> misc_feature	
<222> (1)...(461)	
<223> n = A,T,C or G	
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arcatgtaat acagtccacg tggctccaag gtccaggaaag gcagtggta acacatgaag	120
agtgtggaa gggggctgga aacaaagtat tcttttcctt caaagcttca ttccctcaagg	180
cctcaattca agcagtcatt gtcccttgcctt tcaaaaagttt gtgtgtgcctt catggaaagg	240
atatgtttgt tgccttaattt tgaatttgtgg ccaggaaggcc tctggagatc taaattcaga	300
gtaagaaaaac ctgagctaga actcaggcat ttctcttaca gaacttggct tgcagggttag	360
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<210> 28	
<211> 541	
<212> DNA	
<213> Homo sapien	
<400> 28	
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aactagacaa gtgtgttaag agtgataagt aaaatgcacg tggagacaag tgcattttttt	180
gatctcaggc acctccccctt gcctgtcacc tggggagatga gaggacagga tagtgcattt	240
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<212> DNA	
<213> Homo sapien	
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<210> 30  
<211> 511  
<212> DNA  
<213> Homo sapien

&lt;400&gt; 30

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acagttctgc atggctgaag ggccctcagg aaacttacag tcattgtgga aggcaaaaggaa		180
ggagcaaggc atgtcttaca tgcgtttagg agagagagcg agagcaggag aacctgccac		240
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aatcagctcc taccaggccc cacctccaaac actggggatt gcaattcaac atgagatttg		480
gatggggaca cagattcaaa ccataatcata c		511

&lt;210&gt; 31

&lt;211&gt; 827

&lt;212&gt; DNA

&lt;213&gt; Homo sapien

&lt;400&gt; 31

catggcctt ctcccttagag gccagaggtg ctgccttgc tgggagtgaa gtcgcaggca	60
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ccctggaaac ttgaccgggg aacaacaggt ggcccagagt gatgtgtggcc tggccccctca	240
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&lt;210&gt; 32

&lt;211&gt; 291

&lt;212&gt; DNA

&lt;213&gt; Homo sapien

&lt;400&gt; 32

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ccacagcagt cagttgtca ggcctgtgt tagaagggtca cttggcttca ttggctgtttt	180
ccaaccaatg ggcaggagag aaggccctta tttctcgcccc acccattctc ctgttaccagc	240
acctccgttt tcagtcaggg ttgtccagca acggtaccgt ttacacagtc a	291

&lt;210&gt; 33

&lt;211&gt; 491

&lt;212&gt; DNA

&lt;213&gt; Homo sapien

&lt;400&gt; 33

tgcatgtagt tttattttatg tggtttsgtc tggaaaacca agtgtcccaag cagcatgact	60
gaacatcaact cacttccccct acttgatcta caaggccaaac gccgagagcc cagaccaggaa	120
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ttaagcggtt g	491

&lt;210&gt; 34

&lt;211&gt; 521

&lt;212&gt; DNA

&lt;213&gt; Homo sapien

&lt;220&gt;

&lt;221&gt; misc\_feature

&lt;222&gt; (1)...(521)

&lt;223&gt; n = A,T,C or G

&lt;400&gt; 34

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aagtaacaag tgccaccagt ctgcagatgtt gcaaggatgt catgatgcc ctcattctga	300
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actgaagccg atgcagtctc tgacaactt ccagatccca caacgaatcc cagtgctgg	420
aaggacgggc ctttccttct ggtgggtggaa cangtcccg tggatgtct tggaaanggaa	480
cctgaangt gtttaccccg tccaaggccg accttggcca c	521

&lt;210&gt; 35

&lt;211&gt; 161

&lt;212&gt; DNA

&lt;213&gt; Homo sapien

&lt;220&gt;

&lt;221&gt; misc\_feature

&lt;222&gt; (1)...(161)

&lt;223&gt; n = A,T,C or G

&lt;400&gt; 35

tccccgcgtc gcagggcncc tgccacactgc cygtccgccc gctcgctcgc tcgcccggc	60
cgccgcgtc ccgaccgyca gcatgetgcc gagagtggc tgcccgccgc tgccgctgcc	120
gccgcgcgcg ctgctgccgc tgctgccgt gctgctgtc c	161

&lt;210&gt; 36

&lt;211&gt; 341

&lt;212&gt; DNA

&lt;213&gt; Homo sapien

&lt;400&gt; 36

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aaaaaaaccaa aattatcgcc aagattcagc aaaggggaca gggagctcca gccccgagac	120
ctattatttag cagtgaggag cagaagcagc tgatgtgtt cttatcacaga agacaagagg	180



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<213> Homo sapien	
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tgggcctcct gatcttaaca agccatgctc attatacaca tctctgaact ggacatacca	180
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<213> Homo sapien	
<400> 42	
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gtctctgcaa gtggagccag agtggaggaa tgagctctga agacacagca cccagccttc	180
tcgcaccagc caagccttaa ctgcctgcct gaccctgaac cagaacccag ctgaactgccc	240
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<211> 451	
<212> DNA	
<213> Homo sapien	
<400> 43	
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ctatattctt ggctctgtgt ttccgagact gcttttaatc ccaacttctc tacatggaa	180
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aaaatcatta attacttca acttaataac taattgacat tcctcaaaag agctgtttc	360
aatcctgata ggttcttat ttttcaaaa tatatttgcc atggatgct aatttgaat	420
aaggcgata atgagaatac cccaaactgg a	451

&lt;210&gt; 44

&lt;211&gt; 521

&lt;212&gt; DNA

&lt;213&gt; Homo sapien

&lt;400&gt; 44

gttggacccc caggactgg aaagacactt cttgcccag ctgtggcggg agaagctgat	60
gttcctttt attatgcctc tggatccgaa tttgatgaga tggttgtgg tgtgggagcc	120
agccgtatca gaaatcttt taggaaagca aaggcgaatg ctccctgtt tatatttatt	180
gatgaattag attctgttgg tggaaagaga attgaatctc caatgcattcc atattcaagg	240
cagaccataa atcaacttct tgctgaaatg gatggttta aacccaatga aggagttatc	300
ataataggag ccacaaactt cccagaggca tttagataatg ccttaatacc gtccctggc	360
ttttgacatg caagttacag ttccaaggcc agatgtaaa ggtcgaacag aaatttqaa	420
atggatctc aataaaataa agtttgatea atccccgttga tccagaaatt atagcctcga	480
ggtaactggtg gctttccgg aagcagagtt gggagaatct t	521

&lt;210&gt; 45

&lt;211&gt; 585

&lt;212&gt; DNA

&lt;213&gt; Homo sapien

&lt;400&gt; 45

gcctacaaca tccagaaaga gtctaccctg cacctggc tscgtctcag aggtgggatg	60
cagatcttcg tgaagaccct gactggtaag accatca tgcgaaatgg gcccggatgac	120
accatygaga acgtcaaaagc aaagatccar gacaaggaaag gcrycctcc tgaccagcag	180
aggtgatct ttgcggaaa geagctggaa gatggdcgca ccctgtctga ctacaacatc	240
cagaaagagt cyaccctgca cctggctc cgtctcagag gtgggatgca ratcttcgtg	300
aagaccctga ctggtaagac catcaccctc gaggtggagc ccaggatc catcgagaat	360
gtcaaggc aa agatccaaga taaggaaggc atccctctg atcagcagag gttgatctt	420
gctggaaac agctggaga tggacgcacc ctgtctact acaacatcca gaaagagtcc	480
actctgcact tggcctcgc cttgggggg ggtgtctaag tttccctt taagggtttcm	540
acaaatttca ttgcacttcc ttcaataa agttgttgc ttccc	585

&lt;210&gt; 46

&lt;211&gt; 481

&lt;212&gt; DNA

&lt;213&gt; Homo sapien

&lt;400&gt; 46

gaactggccc ctgagccaa gtcatgcctt gtgtccgc tgcgcgtgc acctctgtkc	60
ctgccccctca cccctccctc ctggcttct gagccagcac catctccaa tagcctattc	120
cttcctgaa atcacacaca catgcggcc acacataacct gtcgcctgg agatggggaa	180
gtaggagaga tgaatagagg cccatacatt gtacagaagg agggcagg tgcagataaaa	240
gcaggcagacc cagccgcage tgagggtgc gtagccacgg tggggccggc attgggctga	300
gcacctgatg ggcctcatct cgtgaatctt cgaggcagcg ccacagcaga ggatgttaagt	360
ggcacctggg ccgagcagag caggagactg agggcagag tggaggctaa gtcgcctgg	420
aactctcaa tcttgcctgc cccctagat gaagccccct tcctgcctt acaattcctg	480
a	481

&lt;210&gt; 47

<211> 461  
<212> DNA  
<213> Homo sapien

<220>  
<221> misc\_feature  
<222> (1)...(461)  
<223> n = A,T,C or G

&lt;400&gt; 47

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cttaacctcc	caggctcaag	ctatcctcct	gccaaagct	tccacatagc	tgggactaca	120
ggtacacngc	caccacaccc	agctaaaatt	tttgtatTTT	tttagagac	gggatctcg	180
cacgttgc	aggctggtcc	catcctgacc	tcaaggagat	ctgcccac	cagcccccca	240
acgtgctagg	attacaggcg	ttagccac	cacccagct	ttgtttgt	ttaatggaa	300
tcaccagttc	ccctccgtgt	ctcagcagca	gctgtgagaa	atgc	ttgtgac	360
ttatgaaggg	gaactccat	gctgaatgag	ggtaggatta	catgc	tttcccggg	420
gtcaagaag	cctcagactc	cagcatgata	agcagggtga	g		461

&lt;210&gt; 48

<211> 571  
<212> DNA  
<213> Homo sapien

&lt;400&gt; 48

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agtaagactg	gggtccttag	atgagaaaaga	gacacccgag	gtccttctct	ctgccgtgt	120
aggatgcac	aagaaggcgg	ccgtctgca	gcgaaggaga	ggccgcacca	aaaaccgaca	180
ccttcattt	ggacttgcag	cctctagaac	tgagaaaata	actgtctgtt	gttaagcca	240
cccagttt	agtattctct	tatggcttcc	taagcagact	aacaaacaaa	cacccaaaat	300
taactgatgg	tttcgctgtc	ttctgtaaaa	attgctatga	gagaactttt	cactcactgt	360
tttgcatgtt	ctccctcagt	ccctggttct	ttcttctcac	ataatccaa	tttcaattt	420
tagttcatgg	cccaggcaga	gtcattcata	acggcatctc	ctgagctaaa	ccagcacctg	480
ctctgctcac	ttcttgactg	gctgetcata	atcagccctc	ttgcagagat	ttcatttcct	540
cccggtccag	gtacttcac	caccaagctc	a			571

&lt;210&gt; 49

<211> 511  
<212> DNA  
<213> Homo sapien

&lt;400&gt; 49

ggataatgaa	tttttttat	tttagcttgg	caaaaaggca	tattcctcta	ttttcttata	60
caacaaat	ccccaaaata	aagcaagcat	atatatctt	aatgtgtat	aatccagtga	120
taaacaagag	cagtacttta	aaagaaaaaa	aaatatgtat	ttctgtcagg	ttaaaatgg	180
aatcaaaacc	atttactctg	ctaactcatt	atttttgt	ttctttttgg	ttaagagagg	240
caatgcaata	cactaaaaaa	ggttttattc	ttatctggca	ttggaaattag	acatattcaa	300
accccaagccc	ccattccaa	actttaagac	cacaaacaag	taatttactt	ttctgaacat	360
tggtttttc	tggaaaatgg	gaattataaa	atagactttg	cagactctt	ttagattaaa	420
taagataatg	tatgaaattc	tttcttctt	tttacttctt	tttcctttt	gagatggagt	480
ctcacccctg	cacccaggct	ggagtacagt	g			511

&lt;210&gt; 50

<211> 561  
<212> DNA

<213> Homo sapien

<400> 50

ccactgcact ccagcctggg tgacggatgt agactctgtc tcaaaaaaac aaacaaacaa	60
acaacacaaa aactaaaaag gaaatagagt tcctcttcc tcatatatga atatattatt	120
tcaacagatt gttgatcacc taccatatgc ttggattgt tctaattgtc ggggatacag	180
caagagggtc tgcagaacctt catggagcat gaaagtaaat aaacaaagtt aatttcaagg	240
ccaggcatgg ttgctcacac ctttagtccc agcaacttgg gaggtcgagg caggtggatc	300
acttggggccc aggagttcaa gtctgcagtg agccaagatt gtccactac tctccaggt	360
gggcaacaga gcaagaccct gtctcagggg gaacaaaaag ttaatttcag attttgttaa	420
gtgctgtaaa ggaagtaaat aggttgatata tcaagagagc acctgaaggc caggcgttgt	480
ggctcaccc tctgtctaa cgcttggg agccccagcg ggccgatcac aaggtcagga	540
gaattttggc caggcatggt g	561

<210> 51

<211> 451

<212> DNA

<213> Homo sapien

<400> 51

agaatccatt tattgggtt taaacttagtt acacaactga aatcagtttgcactacttt	60
atacaggat tacgctgtg tatgccgaca cttaaataact gtaccaggac cactgcttg	120
cttaggtctg tattcagtca ttcaagcatgt agataactaaa aataactgt agtgttcctt	180
taaggaagac tgtacagggt gtgttgcaag atgacattca ccaatttgc aattatttca	240
acccagaaga tacctttcac tctataact tgtcataggc aaacatgtgg ttttagcatt	300
gagagatgca cacaaaaatg ttacataaaa gttcagacat tctaatgata agtgaactga	360
aaaaaaaaaa aaccccacat ctcaattttt gtaacaagat aaagaaaata attaaaaac	420
acaaaaaatg gcattcagtg gtcacaaagc c	451

<210> 52

<211> 682

<212> DNA

<213> Homo sapien

<400> 52

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aaacgtgaag attaacttaa ttgtcaaata ttcccttattt ccccaatca gtatTTTTT	120
tatttctatg caaaaagtatg ctttcaaact gcttaaatga tatatgatata gatacacaaa	180
ccagtttca aatagtaaaag ccagtcatct tgcaattgtt agaaataggt aaaagattat	240
aagacaccc acacacacac acacacacac acacacacgt gtgcacccgaa aatgacaaaa	300
aacaatttgg ccttcctaa ataagaaca tgaagaccct taattgtgc caggaggaa	360
cactgtgtca cccctccctaa caatccaggt agtttccctt aatccaatag caaatctgg	420
catattttagg aggagtgtt ctgacagcca csgttgaaat cctgtgggg accattcatg	480
tccacccact ggtgccctga aaaaatgcca ataatttttgcctccactt ctgctgtgt	540
ctcttcacata tcctcacata gacccccagac ccgctggccc ctggctgggc atcgcattgc	600
tggtagagca agtcataatgtt ctcgttttgc acgtcacaga agcgatacac caaattgcct	660
ggtcgggtcat tgcataacc ag	682

<210> 53

<211> 311

<212> DNA

<213> Homo sapien

<220>

<221> misc\_feature

<222> (1)...(311)  
 <223> n = A,T,C or G

<400> 53

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tatatcttc	attatgccat	cttatcttc	aatgbcaagg	gaacagwtgc	taamctgct	120
tctgcattwa	tcacattaaa	aatggcttc	ttggaaaatc	ttcttgatat	gaataaaga	180
tcttttavag	ccatcatat	aagcmggn	ctctccaaca	cgagtctgc	sasgggggk	240
gagctgtgaa	ctctggctga	aggcttccc	atacacactg	caatgacmtg	gtttctgacc	300
agbgtgagtt	a					311

<210> 54

<211> 561

<212> DNA

<213> Homo sapien

<400> 54

agagaagccc	cataaatgca	atcagtgtgg	gaaggccttc	agttagact	caaggcctttt	60
cctccatcat	cgggttcata	ctggagagaa	accctatgt	tgtatgaat	gccccagagc	120
ctttggttt	aactctcatc	ttaactgt	cgtaaggatt	cacacaggag	aaaaacccta	180
tgttgtaat	gagtgcggca	aagccttc	tcggaggatc	actcttgc	agcatcgaag	240
agttcacact	ggggagaagc	cctaccatgt	cggtgtatgt	ggaaaagctt	tcagccagag	300
ctcccagtc	accctacatc	ageccgagttc	acactggaga	gaagccctat	gactgtggtg	360
actgtggaa	ggccttcagc	cgaggatca	ccctcattca	gcatcagaaa	gttcacagcg	420
gagagactcg	taagtgcaga	aaacatggtc	cagccttgc	tcatggctcc	agcctcacag	480
cagatggaca	gattccact	ggagagaagc	acggcagaac	ctttaaccat	ggtgcaaata	540
tcattctgcg	ctggacagtt	c				561

<210> 55

<211> 811

<212> DNA

<213> Homo sapien

<400> 55

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actgcagccc	tgacctcctg	gactcaaaca	attctctgc	ctcagccctg	caagtagctg	120
ggactgtggg	tgcacatggc	catgcctggc	taactttgt	agttttgt	aaagatgggt	180
tttgcctatgt	tgcacatgt	ggtcttgcac	tcctgagctc	aaacgatctg	cccacctcgg	240
cctcccaagaa	tgttggatt	acaggggtaa	accaccacgc	ctggccccat	taggttattc	300
ttagcatcca	cttgcact	gagattaatc	ataagagatg	ataagcactg	gaagaaaaaa	360
atttttacta	ggctttggat	attttttcc	tttttgcgt	ttatacagag	gattggatct	420
ttagtttcc	tttaactgt	aataaaacat	tgaaaggaaa	taagtttacc	tgagattcac	480
agagataacc	ggcatcactc	ccttgctcaa	ttccagctt	taccacatca	attatttca	540
gagggtcagg	ataaaaggcct	ttagtcgt	ttcgcactt	ttcttccact	tttttgcata	600
cctgttgcc	gacaaatgga	attgacagcg	tatgccatga	ctattccatt	tgtcaggcat	660
acgtgtca	ttttccacc	aatccctgt	ctctttgg	agagatctc	ttatcgtca	720
gtcccttgc	aaaagtaatt	gcaacttctt	ctaggtattc	tattgtccgt	tccactggtg	780
gaacccctgg	gaccaggact	aaaacccatcca	g			811

<210> 56

<211> 591

<212> DNA

<213> Homo sapien

<220>

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<221> misc_feature
<222> (1)...(591)
<223> n = A,T,C or G

<400> 56
atctcatata tatatttctt-cctgacttta tttgcttgct tctgnCACgc atttaaaata      60
tcacagagac caaaaatagag cggcttctgt gtggAACGca tggcAGtAc aggacaaaat      120
acaaaaactag gggcTCTGT ctTCTCatac atcatacaat ttTcaAGtAT ttTTTTATg      180
tacAAAGAGC tactCTATCT gaaaaAAAAT taaaaAATAA atgAGACAAg atAGTTTATg      240
catCCTAGGA agAAAGAAATg gAAAGAAAAGA acGGGGCAGT tgggtACAGA ttCCtGTCCC      300
ctgtTCCCAG ggACCAACTAC ctTCTGCCA ctgAGTtTCCC ccACAGCCTC accCATCATG      360
tcACAGGGCA AGTGCcAGGG taggtGGGG CAAGTGGAGA cAGGAACCAg CAACATACTT      420
tggcCTGGAa gataAGGAGA aAGTCTCAGA AACACACTGG tggGAAGCAA tcccACNGC      480
cgtGCCcCcCAG gagCTTCCCAG CTCtGTCTGtG GCTCCtTGGG tggCTTtGGG AACAGCTTGG      540
gcaggCCCTT ttgggtGGGG nccAACTGGG CCTTtGGGCC cgtgtggAAA g      591

<210> 57
<211> 481
<212> DNA
<213> Homo sapien

<400> 57
aaACATTGAG atGGAATGAT agggTTtCCc agAAATCAGGT CCATATTTTA actAAATGAA      60
aATTATGATT tATAGCCTC tCAAATACCTT GCCATACTTG ATATCTCAAC CAGAGCTAA      120
tttACCTCTT tACAAATTAA ATAAGCAAGT aACTGGATCC ACAATTATA ATACCTGTCA      180
atTTTTCTG tATTAACACCT CTATCATAGT tTAAGCCTAT TAGGtACTT aATCCTTACA      240
aATAAAACAGG tTTAAACATCA CCTCAATAGG CAACtGCCt TCTGGTTTC TTCTTtGACT      300
aaACAATCTG aATGCTTAAG ATTtTCCACT ttgggtGCTA GCAGtACACA GTGTTACACT      360
ctgtATTCCA gACTTCTAA ATTATAGAAA AAGGAATGTA CACTTTtGTt ATTtTTCTG      420
AGCAGGGCCG GGAGGCAACA tCATCTACCA TGGTAGGGAC TTGTATGCAt GGACTACTTT      480
a      481

<210> 58
<211> 141
<212> DNA
<213> Homo sapien

<400> 58
actCTGTcGC ccAGGcTgGA gCCCABTggM gCGATCTcGA CTCCCTGCAA gCTMCgcCtC      60
acAGGwtCAT gCCATTCTCC tGCCTCAGCA tCTGGAGTAG CTGGACTAC AGGCGCCAGC      120
caccatGCC AGCTAATTT t      141

<210> 59
<211> 191
<212> DNA
<213> Homo sapien

<400> 59
acCTTAAAGA catAGGAGAA ttTATACTGG gagAGAAAGC ttACAAATGT aAGGTTCTG      60
acaAGACTTG ggAGTGTATTc ACACCTGGAA CAACATACTG GACTTCACAC tGGABAGAAA      120
CCTTACAAGT gTAATGAGTG tGGCAAAGCC tttggCAAGC AGTCAACACT tATTcACCAT      180
caggCAATTc a      191

<210> 60
<211> 480

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&lt;212&gt; DNA

&lt;213&gt; Homo sapien

&lt;400&gt; 60

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tattacatct gaagaacgta ctaagcatga	taaacagtt gataaacctca aaccttcagg	120
aggttacata acaggtgatc aagccccgtac	ttttttctta cagtcaggte tgccggcccc	180
ggtttttagct gaaatatggg ctttatcaga	tctgaacaag gatggaaaga tggaccageca	240
agagttctct atagctatga aactcatcaa	gttaaaggtg caggccaaac agctgcctgt	300
agtccctccct cctatcatga aacaaccccc	tatgttctct ccactaatct ctgctcggtt	360
tgggatggga aycatgccc atctgtccat	tcatcagcca ttgcctccag ttgcacctat	420
agcaacaccc ttgtcttctg ctacttcagg	gaccagtatt cctcccta at gatgcctgct	480

&lt;210&gt; 61

&lt;211&gt; 381

&lt;212&gt; DNA

&lt;213&gt; Homo sapien

&lt;400&gt; 61

ctttcgatt ctttcaattt gtcacgtttg attttatgaa gttgttcaag ggctaactgc	60
tgtgtattat agctttctct gagttccttc agctgatgt taaatgaatc catttctgag	120
agcttagatg cagtttcttt ttciaagagca tctaattgtt cttaagtct ttggcataat	180
tcttcctttt ctgatgactt tetatgaagt aaactgatcc ctgaatcagg tttgttactg	240
agctgcatgt tttaattct ttctgttaat agctgcctct caggaccag atagataagc	300
ttatttttagt attccttaag ctcttggta agttgttcaat ttccataat ttccaggta	360
cactggttat cccaaacttc t	381

&lt;210&gt; 62

&lt;211&gt; 906

&lt;212&gt; DNA

&lt;213&gt; Homo sapien

&lt;400&gt; 62

gtggagggtga aacggaggca agaaaggggg ctacctcagg agcgaggac aaaggggcg	60
tgaggcacct aggccgcggc accccggcga caggaagccg tcctgaaccg ggctaccgg	120
taggggaagg gccccgcgtag tcctcgagg gccccagacg tggagtccgc tccacagccc	180
cggggcgtcg gcttctact tcctggacct ccccccggcc cggggctgag gactggctcg	240
gcggaggagg aagaggaaac agacttgagc agctccccgt tgcctcgcaa ctccactgccc	300
gaggaactct catttttccctt ctcgtctt caccggccac ctcatgtaga aaggtgctga	360
agcgtccgga gggaaaaga acctgggcta cgggtcttgc cttcccmccc cttcccggg	420
gcgcgttgtt gggcggtgg tttgggttgg ggggggtggg ggggggttctt ttttggagtg	480
ctggggact tttttccctt cttcaggtca gggggaaagg aatggccaaat tcagagagac	540
atgggggcaaa gaaggacggg agtggaggag cttctggAAC tttgcagccg tcatcgagg	600
gcggcagctc taacagcaga gagcgtcacc gcttggatc gaagcacaag cggcataagt	660
ccaaacactc caaagacatg ggggtggta ccccccgaagc agcatccctg ggcacagtt	720
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tggccttcaa actagaccga agggagaacg acgaaacgtcg tggatcagat cggagcgacc	840
gcctgcacaa acatcgtaac caccagcaca ggcgttcccg ggacttacta aaagctaaac	900
agaccg	906

&lt;210&gt; 63

&lt;211&gt; 491

&lt;212&gt; DNA

&lt;213&gt; Homo sapien

&lt;400&gt; 63

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tgcttccaga	gaggatgggg	acagctctca	ggtcagaatc	caggctgaga	aggccatgt	120
ggttgggggc	ccccggaaac	acggtccgga	tcctccctgg	catcagcgta	gaccgcgtc	180
tcaggcttg	ggtacccaaac	tcatgctctg	tactgttttgc	gcccattgcg	gtgagaggaa	240
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tgctgggtac	aacatattcc	ctetcccagg	acacagactc	ggtgactcca	cactgggctg	360
agtggctct	ggagggctgt	gccctaaggc	agggtccctgt	aaggctgatc	ggctgaactg	420
ggtggggta	gggtttctga	cccttcgctt	cccatcccat	aaccgtgtc	aatgagctca	480
cactgtggtc	a					491

&lt;210&gt; 64

&lt;211&gt; 511

&lt;212&gt; DNA

&lt;213&gt; Homo sapien

&lt;400&gt; 64

gatggcatgg	tcgttgctaa	tgtgcctgct	gggatggagc	acttcctctt	gtgagccca	60
gggaccggcc	tgtccctgga	gcttggggca	aggagggaaag	agtgatacca	ggaagggtgg	120
gctcagcca	ggggccagag	ttagttcagg	gagtggctt	cggccctcaa	agctccctcc	180
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caaccccttc	gcctgcctg	ccctccatca	ggaggagcca	gtggaaacctt	cggaaagctc	420
ccagcatctc	agcagccctc	aaaatcgtc	ctggggcaag	ctctgtttct	cctgactgg	480
ggtcatctgg	gcttggcctg	ctctctctcg	c			511

&lt;210&gt; 65

&lt;211&gt; 394

&lt;212&gt; DNA

&lt;213&gt; Homo sapien

&lt;400&gt; 65

taaaaaaagt	taacaaaggt	ttattttagac	tttcttcatg	ccccagatc	caggatgtct	60
atgtaaaccg	ttatcttaca	aagaaaagcac	aatatrrgg	ataaaactaag	tcagtgtact	120
gcttaactga	aatagcgtcc	atccaaaagt	gggtttaagg	taaaactacc	tgacgatatt	180
ggcggggatc	ctgcagtttgc	gactgtttgc	cgggttttgc	cagggttccg	ggtctgttct	240
tggcactcat	ggggacaggc	atctgtctcg	tctgtggggc	cccgctggag	cccttacgt	300
aagctgaagg	tatcgaccst	agggggctct	agggcagtgg	gacccatc	cggaaactaac	360
aagggtcggg	gagaggcctc	ttgggctatg	tggg			394

&lt;210&gt; 66

&lt;211&gt; 359

&lt;212&gt; DNA

&lt;213&gt; Homo sapien

&lt;400&gt; 66

caagcgttcc	tttatggatg	taaattcaaa	cagtcatgt	gagccatccc	gggctgacag	60
tcacgttwaa	gacacttaggt	cgggcgccac	agtgcaccc	aaggagaaga	agaatttgg	120
atttttccat	gaagatgtac	gaaatctga	tgttgaatat	aaaaatggcc	cccaaatgg	180
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aatggagaat	agtatgttgc	atgcatacg	aaatcgatc	tataaaactg	agatcataat	300
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&lt;210&gt; 67

&lt;211&gt; 450

<212> DNA  
 <213> Homo sapien

&lt;220&gt;

<221> misc\_feature  
 <222> (1)...(450)  
 <223> n = A,T,C or G

&lt;400&gt; 67

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agtggaggag gacacaggac tagccacca ctttcttc ccggctctcc aagatgactg	180
cttatacgat ggaggaggca aacaggccc ctcataatgtac cagatggtca cctatagcac	240
cagctccaga tggccacgtg gttgcagtg gactcaatga aactctgtga caaccagaag	300
atacctgttt tggatgaga gggaggataa agccatgcag ggaggatatt taccatccct	360
accctaagca cagtgcagaagc agtgagcccc cggtccccag tacctgaaaa accaaggccc	420
actgnctttt ggatgtctc ttgggccacg	450

&lt;210&gt; 68

&lt;211&gt; 511

&lt;212&gt; DNA

&lt;213&gt; Homo sapien

&lt;400&gt; 68

aaggcctcctg ccctggaaat ctggagcccc ttggagctga gctggacggg gcagggaggg	60
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cacagcagaa acgcccacgc aaaaaatggg agccgagagt ctttagccct ggagctgagg	180
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catttgagggc cagggtggag gaaaggagg ccaacagagg aaaacctatt cctgctgtga	300
caacacagcc ctgtccccac gcagcctaag tgcagggagc gtgatgaagt caggcagcca	360
gtcgggggagg acgaggttaac tcagcagcaa tgcacccctg tagcttatgc gctcaatggc	420
ccggagggggc agcaacccccc cgccacacgtc agccaacagc agtgcctctg caggcaccaa	480
gagagcgtatg atggacttga gcgcgtttt c	511

&lt;210&gt; 69

&lt;211&gt; 511

&lt;212&gt; DNA

&lt;213&gt; Homo sapien

&lt;400&gt; 69

gtttggcaga agacatgttt aataacatTT tcataattaa aaaatacagc aacaattctc	60
tatctgtcca ccattttgcc ttgccttcc tggggcttag gcaagacaaag gaaaggtaat	120
gagggttaggg cccccaggcg ggttaagtgc tattggctt ctcctgtca aagagagcca	180
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cctccagggc ttctctcttc ttcgtggctt ccagttcacc tgccagccgg gtcggggccg	420
ccaggtatgc agcgttgttag aagcagccct ccgcagaagc ctgcgggtca aatctcccc	480
ctataggaga cccccggggag gggtcagcac c	511

&lt;210&gt; 70

&lt;211&gt; 511

&lt;212&gt; DNA

&lt;213&gt; Homo sapien

&lt;400&gt; 70

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gatttagcaag	ggaccctca	ctaagtgttg	atggagttag	gacagagctc	agctgtttga	300
atctcagagc	ccaggcagct	ggagctgggt	aggatccctgg	agctggcaact	aatgtgaggt	360
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gcagggctga	gctggcccg	tgggctccct	gctccttca	caccacactc	tcgctttgag	480
gtgctggct	gggactactt	cacagagcag	c			511

&lt;210&gt; 71

&lt;211&gt; 511

&lt;212&gt; DNA

&lt;213&gt; Homo sapien

&lt;400&gt; 71

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tcaagggccgc	tgtggggagg	aaaattgtgt	tcaatcgatc	gacatgggtga	agggggaaatc	480
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&lt;210&gt; 72

&lt;211&gt; 2017

&lt;212&gt; DNA

&lt;213&gt; Homo sapien

&lt;400&gt; 72

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aacagtttga	taacctcaa	ccttcaggag	gttacataac	aggtgtatcaa	gccccgtactt	180
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catctaaatct ctcagaaatg gattcattt acaatcgat gaaaggactc agagaaaact 1920  
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aaatcgaaag aaaaagatta gagcaaaaaa aaaaaaaaaa 2017

<210> 73

<211> 414

<212> DNA

<213> Homo sapien

<400> 73

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taatcgat	ctcagagggc	tctaagggtc	caagaagtct	cactggacat	ttaagtgc	180
acaaggcat	actttcgaa	tgcgcaggatc	aaaacttct	aacttctgtc	tctctcagag	240
acaagtgaga	ctcaagatc	tactgttta	gtggcaacta	cagaaaaactg	gtgttaccca	300
aaaaaacagg	agcaattaga	aatggttcca	atatttcaaa	gctccgc	aaa caggatgtc	360
tttccttgc	ccatttaggg	tttcttctct	ttccttctc	tttattaaacc	acta	414

<210> 74

<211> 1567

<212> DNA

<213> Homo sapien

<400> 74

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attcatgtga	actagacaag	tgtgttaaga	gtgataagta	aatgcacgt	ggagacaagt	180
gcatccccag	atctcaggga	cctccccctg	cctgtcacct	ggggagtgag	aggacaggat	240
agtgcatttt	cttgcatttt	gaatttttag	ttatatgtgc	tgtaatgttg	ctctgaggaa	300
gccccctggaa	agtctatccc	aacatatacca	catcttatata	tccacaaaatt	aagctgtagt	360
atgtacccta	agacgctgct	aattgactgc	cacttcgcaa	ctcaggggcg	gctgcattt	420
agtaatgggt	caaatgattc	actttttatg	atgcttcaa	aggtgcctt	gttctcttc	480
ccaaactgaca	aatgccaaag	tttagaaaaaa	tgatcataat	tttagataaa	acagagcagt	540
ccggcgcacacc	gattttataa	ataaaactgag	cacccctttt	ttaaacaac	aatgcgggt	600
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<211> 240	
<212> DNA	
<213> Homo sapien	
<400> 75	
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ggaagacctg gggaaaaaca ccatggttt atccaccctg agatcttga acaacttcat	180
ctctcagcgt gcgaggaggact gctctggact ggatatttct acctcgcccg cgaccacgct	240
<210> 76	
<211> 330	
<212> DNA	
<213> Homo sapien	
<220>	
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tcagcctgca gccagagtac agagggccaa cactgggtt cttaacaag ggccttagca	180
ggccctgaag grccctctct gtatgttga acttccttgg a cccaggccac atgttctct	240
catacccgag gytagygtg gtgaagttga gggtgaaata gtattmangr agatggctgg	300
caracctgcc cggccggccg ctcsaaatcc	330
<210> 77	
<211> 361	
<212> DNA	
<213> Homo sapien	
<400> 77	
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<210> 78	
<211> 356	
<212> DNA	
<213> Homo sapien	
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<221> misc_feature
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<223> n = A,T,C or G

<400> 78
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gaagttcaac accacggaga gggcttca gggcctctc aggtccctgt tcaagagecac    180
cagtgttgc cctctgtact ctggctgcag actgactttg ctcagacttg agaaacatgg    240
ggcagccact ggagtggacg ccatctgcac cctccgcctt gatcccactg gtcctggact   300
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<210> 79
<211> 226
<212> DNA
<213> Homo sapien

<400> 79
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cattaatac acctaacgta tcgaacatca tagcttggcc cagttatct catatgtgtc    180
cagaacactt acaatagcct gcagacctgc cggccggcc gtcga                          226

<210> 80
<211> 444
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(444)
<223> n = A,T,C or G

<400> 80
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gsmgmssag gmwgwgtyy cwgaggttcy rarrtccact gtggagggtcc caggagtgtc    180
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ctctckgyyy mgwccagsgc ttttgggtc aagatgatgg atgcagatgg catccactcc   360
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gccaacactg gtgttcttg aata                                         444

<210> 81
<211> 310
<212> DNA
<213> Homo sapien

<400> 81
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acagagggcc aacactgggtg ttcttgaaca agggcttgag cagaccctgc agaaccctct  240
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<210> 82  
<211> 571  
<212> DNA  
<213> Homo sapien

<220>  
<221> misc\_feature  
<222> (1)...(571)  
<223> n = A,T,C or G

<400> 82

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taataaactt catcaaaaaga gaactaaatgc aacactgttc actttctttt taacagg	caa	180
aatataaata tatgcactct anaatgcaca atgggttagt cactaaaaaa ttcaaa	atgg	240
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<210> 83

<211> 551  
<212> DNA  
<213> Homo sapien

<400> 83

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cgagcttcac tttccaagctt aggggatgtc tatgtcaatg atgcttttgg cactgctcac	180	
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aagtttgatg a		551

<210> 84

<211> 571  
<212> DNA  
<213> Homo sapien

<400> 84

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<210> 85	
<211> 561	
<212> DNA	
<213> Homo sapien	
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aaagactctc taatgtgaa gttcaatgttcaatgtttt aatgtcttag	480
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ggaacacagt ctataccagg t	561
<210> 86	
<211> 795	
<212> DNA	
<213> Homo sapien	
<400> 86	
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&lt;210&gt; 93

&lt;211&gt; 531

&lt;212&gt; DNA

&lt;213&gt; Homo sapien

&lt;400&gt; 93

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&lt;211&gt; 697

&lt;212&gt; DNA

&lt;213&gt; Homo sapien

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&lt;210&gt; 101

&lt;211&gt; 451

&lt;212&gt; DNA

&lt;213&gt; Homo sapien

&lt;400&gt; 101

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&lt;210&gt; 102

&lt;211&gt; 571

&lt;212&gt; DNA

&lt;213&gt; Homo sapien

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gtacattta agccaataag ctgcaggatg tacacctaac agacctccta gaaaccttac	180
cagaaaatgg ggactggta gggaggaaa cttaaaagat caacaaactg ccagccacg	240
gactgcagag gctgtcacag ccagatgggg tgccagggt gccacaaacc caaagcaaag	300
tttcaaaaata atataaaatt taaaaagttt tgtacataag ctattcaaga tttctccac	360
actgactgtat acaaagcaca attgagatgg cacttctaga gacagcagct tcaaaccac	420
aaaagggtga tgagatgagt ttcacatggc taaatcagtgc gaaaaaacac agtcttctt	480
ctttcttct ttcaaggagg caggaaagca attaagtggt cacctcaaca taaggggac	540
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<210> 107	
<211> 555	
<212> DNA	
<213> Homo sapien	
<400> 107	
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tgagcgcctc cagcagaag ttgaggaga aaggcggcc cggAACAGG ctgaggctga	180
ggtgtccctt ttgaaccgtt gatatccgtt ggttgaagaa gagctggacc gtgcctcaga	240
gcccctggcc actgccctgc aaaagctggaa agaagctgaa aaagctgctg atgagagtga	300
gagaggatatg aagtttatttgg aaaaacgggc cttaaaagat gaagaaaaga tggactcca	360
ggaaatccaa ctcaaagaag ctaagcacat tgcagaagag gcagatagga agtatgaaga	420
ggtgtccgtt aagtgggtga tcattgaagg agacttggaa cgacacagagg aacgagctga	480
gctggcagag tcccttgcc gagagatggta tgagcagatt agactgtgg accagaacct	540
gaagtgtctt agtgc	555
<210> 108	
<211> 541	
<212> DNA	
<213> Homo sapien	
<400> 108	
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ctcattccga tggacgaccg taatgcctac aggtgtttt cgcacccacg gcacatttt	180
gttgcaatgg acaagttcgg gtttagcctg ccatatgttc agtattttgg aggtgtctct	240
gtctctcgtt aacaacagt tcttgccatc aatggattcc ctaataatta ttggggttgg	300
ggaggagaag atgacgacat tttaacaga tttagttcata aaggcatgtc tatatcacgt	360
ccaaatgttgc tagtagggag gtgtcgtatc atccggcatt caagagacaa gaaaaattag	420
cccaatcctc agaggttga ccggatcgca catacaaagg aaacgatgcg ctgcgtgtt	480
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c	541

<210> 109  
 <211> 411  
 <212> DNA  
 <213> Homo sapien

<400> 109

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 ggagaacaat aagaactgga gacgttgggt ggtcagggg gtgtggtgg ggctcgaga  
 gatggtaaac aaacctgact gctatgagtt tcaacccta tagtctaggg ccatgagggc  
 gtctggttctt ggtggctgag gtccttcca cccagccac ctggggagt ggagtggga  
 gttctgccag gtaagcagat gttgtctccc aagttctga cccagatgtc tggcaggata  
 acgctgacct gttccctcaa caaggcacct gaaagtaatt ttgccttta c

60  
 120  
 180  
 240  
 300  
 360  
 411

<210> 110  
 <211> 451  
 <212> DNA  
 <213> Homo sapien

<400> 110

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 attattccta gaaccaggcg acctgcact cttgacgtt gacaatcgag tagtactccc  
 gattgaagcc cccatcgta taataattac atcacaagac gtctgcact catgagctgt  
 ccccacatta ggctaaaaaa cagatgcaat tcccgacgt ctaagccaaa ccactttcac  
 cgctacacga ccgggggtat actacggta atgctctgaa atctgtggag caaaccacag  
 tttcatgccc atgccttag aattaattcc cctaaaaatc tttgaaatag gccccgtatt  
 taccctatacg caccctctt accccctcta g

60  
 120  
 180  
 240  
 300  
 360  
 420  
 451

<210> 111  
 <211> 541  
 <212> DNA  
 <213> Homo sapien

<400> 111

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 aacagtttc ctgaccgtt gggagcgtt aagggtgacc agcacattt cacaatgaaa  
 aaaggagtga ccccaaggcc tcaaccacac ttcccagagc tcaccatggg ctgcaggta  
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 ggattccagt ttatgaaaat taaaagcaaa caacggttt tagctgggtg ggaaacacagga  
 aaactgttat gtcggccat gaccaccatt ttctgcccc tttgtggc cccatgaaac  
 c

60  
 120  
 180  
 240  
 300  
 360  
 420  
 480  
 540  
 541

<210> 112  
 <211> 521  
 <212> DNA  
 <213> Homo sapien

<400> 112

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 cagttaccacc cttctctccc cactttccct tttccggcaa catctctggg atcaacac

60  
 120  
 180  
 240  
 300  
 360  
 411

atattgacac gttggagccg agcctgaaca tgcccctcg ccccagcaca tggaaaaccc	240
ccttccttc ctaagggtgc tgagtttctg gcttttgc cattccaga cttgaaatc	300
tcatcagtc attgtcttg agtctttgc gagaacctca gatcagggtgc acctgggaga	360
aagactttgt ccccaactac agatcttatct cttcccttgg gaagggcagg gaatggggac	420
ggtgtatgga gggaaaggga ttcctgcgc ctttcattgc cacacttggt gggaccatga	480
acatcttagt tgtctgagct tctcaaatta ctgcaatagg a	521
<210> 113	
<211> 568	
<212> DNA	
<213> Homo sapien	
<400> 113	
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agacattaaa gcaaaaatgc aagcaagtat agaaaaaggt ggttcttc ccaaagtgg	180
agccaaatcc atcaattatg tgaagaatttgc cttccggatg actgaccaag aggctattca	240
agatctctgg cagtgagga agtctttta agaaaaatagt ttaaacaatt ttgtaaaaaaaa	300
ttttccgtct tatttcattt ctgttaacagt tgatatatgg ctgtttttt tataatgcag	360
agtgagaact ttccctaccg tgtttgataa atgttgcca gggttctattt ccaagaatgt	420
gttgtccaaa atgcctgttt agttttaaa gatgaaactc cacccttgc ttgttttaa	480
gtatgtatgg aatgttatga taggacatag tagtagcggt ggtcagacat ggaaatggtg	540
ggsmgacaaa aatatacatg tgaaataa	568
<210> 114	
<211> 483	
<212> DNA	
<213> Homo sapien	
<400> 114	
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ttgtggaaatg tgtttaaagg attgatttcta gaaccttgc atatttgcata gtatttctaa	180
ctttcatatc tttactgttt gcagttatgc ttcatgttct gctatgcata cgtttatatg	240
cacgtttttttaatttttt agattttgc ggatgtatag tttaaacaac aaaaagtcta	300
ttttaaactg tagcagttgt ttacagttct agcaaaagagg aaagttgtgg ggtaaactt	360
tgtatttct ttcttataga ggcttctaaa aaggtatttt tataatgttct tttaacaaa	420
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tgc	483
<210> 115	
<211> 521	
<212> DNA	
<213> Homo sapien	
<400> 115	
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gctgaatgaa attgtcgaaa atgaagacac cgtgagcagg ctagagggtct ttgcaaggaa	180
aggaaaatgt cccaaacatca tcattgcggg ccctccagga accggcaaga ccacaagcat	240
tctgtgttttgc gccccggccc tgctggggcc agcactcaaa gatgccatgt tggactcaa	300
tgcttcaat gacagggca ttgacgttgc gaggataaaa attaaaaatgt ttgctcaaca	360
aaaagtcaact ttcccaaag gccgacataa gatcatcatt ctggatgaag cagacagcat	420
gaccgacgaa gcccagcaag ccttgaggag aaccatggaa atctactcta aaaccactcg	480
ttcgccccctg ttgtatgc ttccggataag atcatcgagc c	521

<210> 116  
<211> 501  
<212> DNA  
<213> Homo sapien

<400> 116

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agctgccttc cagcagccctg ccaaggccat ggcagagaga gactgcaaac aaacacaaggc	180
aaacagagtc tcttcacagc tggagtctga aagctcatag tggcatgtgt gaatctgaca	240
aaattaaaaag tgtgcatacg ccattacatg cataaaaacac taataataat cctgtttaca	300
cgtgactgca gcagggcagg tccagctccac cactgcctc ctgccacatc acatcaagtg	360
ccatggttta gagggttttt catatgtaat tcttttattt tgtaaaaaggta aacaaaatat	420
acagaacaaa actttccctt tttaaaacta atgttacaaa tctgtattat cacttggata	480
taaatagtagat ataagctgat c	501

<210> 117

<211> 451

<212> DNA

<213> Homo sapien

<220>

<221> misc\_feature

<222> (1)...(451)

<223> n = A,T,C or G

<400> 117

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ttagttctct ccctccccag cgtctcccttc gtctccctgg tttcccgatg tccacagagt	120
gagattgtcc ctaagtaact gcatgatcag agtgcgtkct ttataagact cttcattcag	180
cgtatccaat tcagcaattt cttcatcaaa tgccgtttt gcccggctac agggcttttc	240
aggagagttt agaatctcat agtaaaagac tgagaaaattt agtgcgcagac caagacgaat	300
tgggtgttta ggctgcattt ctttcttact aatttcaaat gcttcctgtt aagcctgttgc	360
ggagttccac acaagtggtt tgggtgttgc tccagatgcc acttcagaaa gatacctaaa	420
ataatctcctt ttcattttca aagtagaca c	451

<210> 118

<211> 501

<212> DNA

<213> Homo sapien

<400> 118

tccggagccg gggtagtcgc cggccggccgc gccgggtcag ccactgcagg caccgctgcc	60
ggcgccctgag tagtgggtt aggaaggaaag aggtcatctc gctcggagct tcgcctggaa	120
gggtctttgt tccctgcagc cctccacgg gaatgacaat ggataaaaagt gagctggtag	180
agaaaagccaa actcgctgag caggctgagc gatatgatga tatggctgca gccatgaagg	240
cagtcacaga acaggggcat gaactctcca acgaagagag aaatctgttc tctgttgcct	300
acaagaatgt ggtaaggccg cccgcccctc ttccctggcgt gtcatctcca gcattggca	360
gaaaacagag aggaatgaga agaaggcagca gatggggaaa gagtaccgtg agaagataga	420
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caatgctaca caacccagaa a	501

<210> 119

<211> 391

<212> DNA  
 <213> Homo sapien

<400> 119

aaaaagcagc argtcaaca caaaatagaa atctcaaattt taggatagaa caaaaccaag	60
tgtgtgagggg gggaaagcaac agcaaaaaggaa agaaatgaga ttttgcaaaa aagatggagg	120
agggttcccc ttcctctgg ggactgactc aaacactgtat gtggcagtat acaccattcc	180
agagtcaagggt gtgtcattc tttttggga gtaagaaaag gtggggatta agaagacgtt	240
tctggaggtt tagggaccaa ggctggcttc ttccccctt cccaaacccccc ttgatccctt	300
tctctgtatca gggggaaaggaa gctcgaatga gggaggtaga gttggaaagg gaaaggatcc	360
cacttgacag aatgggacac actccttccc a	391

<210> 120

<211> 421

<212> DNA

<213> Homo sapien

<220>

<221> misc\_feature

<222> (1)...(421)

<223> n = A,T,C or G

<400> 120

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gttccgcgg aaggccttcc tccactggta cacaggcgag ggcataggacg agatggagg	120
caccgaggtt gagagcaaca tgaacgacct cgtctcttag tatcaaggcag taccaggatg	180
ccaccgcaga agaggaggag gatttcgggtt aggaggccga agaggaggcc taaggcagag	240
cccccatcac ctcaggcttc tcaagttccct tagccgtctt actcaactgc ccctttccctc	300
tccctcagaa tttgtgtttt ctgcctctat cttgtttttt gttttttttt ctgggggggt	360
ctagaacagt gcctggcaca tagtaggcgc tcaataaata cttgggttgtt gaatgtctcc	420
t	421

<210> 121

<211> 206

<212> DNA

<213> Homo sapien

<400> 121

agctggcgtt agggctcggt ttttqaaatac agcgtrgtca gccccttgcgc tcagtgtttaga	60
aacccacgcc tgtaaggctcg gtcttcgtcc atctgttttt ttctgaaata cactaagagc	120
agccacaaaaa ctgtaacctc aaggaaacca taaagcttgg agtgccttaa tttttaaacca	180
gtttccaata aaacggttta ctacct	206

<210> 122

<211> 131

<212> DNA

<213> Homo sapien

<400> 122

ggagatgaag atgaggaagc tgagtctggc acgggcargc gggcagctga agatgtatgag	60
gatgacgtatg tcgataccaa gaagcagaag accgacgagg atgacttagac agcaaaaaaaag	120
aaaaagttaa a	131

<210> 123

<211> 231

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<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(231)
<223> n = A,T,C or G

<400> 123
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cctcagtggc agtakgctaa kgaagatcaa gctacagsac atyatcta atgaatgtt      120
gcaattacat akcargaagc atgtttgctt tccagaagac tatggnacaa tggtcattwg      180
ggcccaagag gatatttggc cnggaaagga tcaagataga tnaangtaaa g      231

<210> 124
<211> 521
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(521)
<223> n = A,T,C or G

<400> 124
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agcagccgtg atcgcttagt ggagtgccta gggtagttgg ccaggatgcc gaatatcaa      120
atcttcagca ggcagctccc accaggactt atctcasaaa attgctgacc gcctgggcct      180
ggagcttaggc aagggtggta ctaagaaatt cagcaaccag gagacctgtg tggaaattgg      240
tgaaaagtgtt ccgtggagag gatgtctaca ttgttcagag tggtgtggc gaaatcaatg      300
acaatttat ggagcttttgc atcatgatta atgcctgcaa gattgcttca gccagccgg      360
ttactgcagt catccccatgc ttccctttagt ccccgccagg ataagaaaga tnagagccgg      420
gccgccaatc tcagccaagc ttggtgcaaa tatgctatct gtacgcgtgc agatcatatt      480
atcacccatgg acctacatgc ttctcaaatt canggctttt t      521

<210> 125
<211> 341
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(341)
<223> n = A,T,C or G

<400> 125
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gtaccccccgc tccccgacca caaccccccctt cctccccccgg ggaaagcaag aaggagcagg      120
tgtggcatct gcagctggga agagagagggc cggggaggtg ccgagctgg tgctggtctc      180
tttccaaata taaaatcgtg tgtcagaact ggaaaatctt ccagcacccca ccacccaagc      240
actctccgtt ttctqccgggt gtttggagag gggcggnnggg cagggggcgcc aggcaccgjc      300
tggctgcggc ctactgcattt cgctgggtgt gcaccccgcg a      341

<210> 126
<211> 521

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<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(521)
<223> n = A,T,C or G

<400> 126
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ggagagatcc agcagatccc ggtgcagctg aatgccggcc agctgcagta tatccgctta 180
gcccagctg tattaggac tcaagtgtg cagggacaga tccagacact tgccaccaat 240
getcaacaga ttacacagac agaggctccag caaggacage agcagttcaa gccagttcac 300
aagatggaca gcagctcac cagatccagc aagtccat gcctgcggc cangacctcg 360
ccagccccatg ttcatccagt caagccaacc agcccttcna cggcaggcc ccccaggtga 420
ccggcgaactg aaggccctga gctggcaagg ccaangacac ccaacacaat ttttgcata 480
cagccccccag gcaatggca cagctttct tcccagagga c 521

<210> 127
<211> 351
<212> DNA
<213> Homo sapien

<400> 127
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aatgcatttta aaaaataaaa gggaggtggg cagcaaacac acaaagtccct agtttctgg 120
gtccctggaa gaaaagagtg tggcaatgaa tccaccact ctccacaggg aataaatctg 180
tctcttaat gcaaagaatg ttccatggc ctctggatgc aaatacacag agctctgggg 240
tcagagcaag ggatggggag aggaccacga gtgaaaagc agctacacac attcacctaa 300
ttccatctga gggcaagaac aacgtggcaa gtcttgggg tagcagctgt t 351

<210> 128
<211> 521
<212> DNA
<213> Homo sapien

<400> 128
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agagtttaagg gaaggtttcc ttccatttctt gttcccttc ttttctttt gaacagtttt 120
taaatataact aatacgtaag tcatttgccca gccaggtccc ggtgaacagt agagaacaag 180
gagcttgcta agaattaatt ttgctgtttt tcacccctt caaacagagc tgccctgttc 240
cctgtatggag ttccatttctt gccaggggcac ggctgagtaa cacgaagccca ttcaagaaaag 300
gcgggtgtga aatcactgca accccatggc cagaccctc actttccctt ctttagccgca 360
gcgcgtactta ataaatatat ttatactttt aaattatgt aaccgatttt tcccatgcgg 420
catccctaagg gcacttgcca gctttatcc ggacagtcaa gcactgttgt tggacaacag 480
ataaaaggaaa agaaaaagaa gaaaacaacc gcaacttctg t 521

<210> 129
<211> 521
<212> DNA
<213> Homo sapien

<400> 129
tgagacggac cactggcctg gtcccccctc atktgctgtc gttaggacctg acatgaaacg 60

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cagatctagt ggcagagagg aagatgatga ggaacttctg agacgtcggc agcttcaaga	120
agagcaatta atgaagctta actcaggccct gggacagttt atcttcaaag aagagatgga	180
gaaagagagc cgggaaaaggc catctctgtt agccagtcgc tacgatttcc ccatcaactc	240
agcttcacat attccatcat ctaaaaactgc atctctccct ggctatggaa gaaatggct	300
tcaccggccct gtttctaccg acttcgctca gtataacage tatggggatg tcagcggggg	360
agtgcgagat taccagacac ttccagatgg ccacatgcct gcaatgagaa tggaccgagg	420
agtgtctatg cccaacatgt tggaacccaa gatatttcca tatgaaatgc tcatggtac	480
caacagaggg ccgaaaccaa atctcagaga ggtggacaga a	521
<210> 130	
<211> 270	
<212> DNA	
<213> Homo sapien	
<400> 130	
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ctgcacggag actctgggtt gggcttgc gaggtggtca gtgaactcct gatagggaga	120
cttggtaat acagtctctt tccagaggc ggggtcagg tagtgttagg tcttagaaat	180
ggcatcaaaag gtggccttgg cgaaggttgc cagggtggca gtgeagecccc gggctgaggt	240
gttagcgtca tcgataccag ccatcatgag	270
<210> 131	
<211> 341	
<212> DNA	
<213> Homo sapien	
<400> 131	
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ccagccatcc gctccctactg atgagacaag atgtgggtat gacagaatca gctttttaaa	120
ttatgtataaa tagctcatgc atgtgtccat gtcataactg tcttcatacg cttctgcact	180
ctggggaaaga aggagttacat tgaagggaga ttggcaccta gtggctggga gcttgccagg	240
aacccagttgg ccagggagcg tggacttac ctttgcctt tgcttcattc ttgtgagatg	300
ataaaaactgg gcacagctct taaaataaaat ataaaatgaaac a	341
<210> 132	
<211> 844	
<212> DNA	
<213> Homo sapien	
<220>	
<221> misc_feature	
<222> (1)...(844)	
<223> n = A,T,C or G	
<400> 132	
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gaaccttcca gaagtggca tctgtgggtt tgcctttgg gaaggagcag aagtacacat	120
gccatgttgg acatgggggg ctgcctgagc ccctcacccct gagatggggc aaggaggagc	180
ctcccttccatc caccaagact aacacagtaa tcattgtgt tccgggttgc cttggagctg	240
tggtcatccct tggagctgtt atgggttttg tggatgaaagag gaggagaaac acagggtggaa	300
aaggaggggaa ctatgtctg gtcctcaggccc cccagagctc tgatatgtct cttccacat	360
gtaaaatgtt aagacagctg cttgggttgg acttgggttgc agacaatgtc ttcacacatc	420
tcctgtgaca tccagagacc tcagttctt ttagtcaagt gtctgtatgtt ccctgtgagtt	480
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ccctgcactg ccctgttgc cttccacag ccaacatttc tgcctccagcc aaacatttgtt	600

ggacatctgc	agcctgtcag	ctccatgcta	ccctgacacctt	caactcctca	cttccacact	660
gagaataata	atttgaaatgt	gggtggctgg	agagatggct	cagcgctgac	tgctcttcca	720
aaggtcctga	gttcaaatcc	cagcaaccac	atggtggtc	acaaccatct	gtaatgggat	780
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taag						844
<210>	133					
<211>	601					
<212>	DNA					
<213>	Homo sapien					
<400>	133					
ggccggggcgc	gcgcggcccc	gccacacgc	cgccggcgt	gccagtttat	aaagggagag	60
agcaagcgc	gagtttgc	aa	gtctgtttt	gtgttttga	tccatttcca	120
cagccgc	tcagactcca	gcagccaaga	tggtaagca	gatcgagagc	aagactgttt	180
ttcaggaa	cttggacgct	gcaggtgata	aacttgttagt	agttgacttc	tcagccacgt	240
gggtgtgg	tttgc	aaaatgt	atcaagcctt	tcttcattt	cctctcttca	300
acgtgtat	ccttgc	aaatgt	gtatgtggat	actgtcagga	tgttgttca	360
tcaaatgc	gc	aaacattt	cagtttttta	agaaggaca	aaaggtgggt	420
gagccaat	aa	aaaaagctt	gaagccacca	ttaatgaatt	agttaatca	480
aaatataacc	agccatttgc	tattttaaac	ttgttatttt	ttaatttac	aaaaatataaa	540
aatatgaaga	cataaacccm	gttgc	catct	gcgtgacaat	aaaacattaa	600
t						601
<210>	134					
<211>	421					
<212>	DNA					
<213>	Homo sapien					
<400>	134					
tcacataaga	aatttaagca	agttacrc	tctttttttt	cacaacgaat	gcattttat	60
agagaaaccc	ttccctccct	ccacccccc	ccccccccc	cctccatgaat	taagaatcta	120
agagaagaag	taaccataaa	accaagt	tttt	gtgaaatcca	tcatccagag	180
gtgatttagt	taatattgcc	tttcttacaa	atttctattt	aaaaaaaaat	tataacctt	240
attgttttatt	acaaaaaaat	tcagtacaaa	agttcaat	atggaaaaat	gtttttcccc	300
tccctcacag	caccgtttt	tatata	agcag	agaataatga	agagattgt	360
ggcaatctt	caaatttacac	caagacgcac	agtgg	tttacccccc	tttctcataaa	420
g						421
<210>	135					
<211>	511					
<212>	DNA					
<213>	Homo sapien					
<400>	135					
ggaaaggatt	caagaattt	aggacttgct	tgctrragaa	aaagacaact	ctcg	60
gctgacagac	aaagagagag	agatggcgg	aataaggat	caa	atgcgc	120
tgactatgaa	cagcttctt	atgtt	agccctggac	atggaaatca	gtgttt	180
gaaactctt	gaaggcgaag	aaagagagtt	gaagctgtct	cca	aggccctt	240
gacagtatcc	cgagcatcct	caagtcgt	tgtaccgtac	aactagagga	aagcggaa	300
gggttgatgt	ggaagaatca	gaggcgaagt	agtagtgtt	gcatctctca	ttccgcctca	360
accactggaa	atgtttgc	cgaagaaatt	gatgtt	ttat	cccgttggaa	420
gaacacttct	gaacaggatc	aaccaatggg	aaggcttggg	agatgtat	aaaaatttggaa	480
gacacatcag	tcagttataa	atatacctca	a			511

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<210> 136
<211> 341
<212> DNA
<213> Homo sapien

<400> 136
catgggttcc accaggttgc ccaggctgct cttgaactsc tgacccagg tgatccacc 60
gcctcgccct cccaaagtgc tggattaca ggcgtgagcc accacgcccgg gcccccaaaag 120
ctgtttcttc tggatccatgc gtaaaagctct cttttttttc ttccaggttct tttttttttc 180
gactgccaggc aagctcagtc actccgtggc ttccaggttct tttttttttc 240
ttcaaggttct gcctcagtga aagctgcagg tccccaggta agtgcagg tgagggttct 300
ttgaaccttgg ttctatcagt cgaattaatc cttcatgatg g 341

<210> 137
<211> 551
<212> DNA
<213> Homo sapien

<400> 137
gatgtgttgg accctctgtt taaaaaaaaa cttcacaaag aatccccctgc ttattacaga 60
agaagatgca tttaaaaatgggttattttt caactttttt tctgaggaca agtattccatt 120
aatttttgtt tcagaagaga ttgaataacctt gcttaagaag cttacagaag ctatggagg 180
aggttggcagg caagaacaat ttgaacat taaaatcaac tttgtatgaca gtaaaaaatgg 240
cctttctgca tgggaactta ttgagcttat tggaaatggc cagtttagca aaggcatgg 300
ccggcagact gtgtctatgg caatataatga agtcttaat gaacttataat tagatgtgtt 360
aaagcagggt tacatgtga aaaaggccca cagacggaaa aactggactg aaagatgggt 420
tgtactaaaa cccacataa ttcttacta tgtgatgag gatctgaagg ataagaaagg 480
agacatttcc ttggatgaaa attgtgtgtt agaagtcctt gcctgacaaa agatggaaag 540
aatgccttt t 551

<210> 138
<211> 531
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(531)
<223> n = A,T,C or G

<400> 138
gactgggttct ttatccaaa aagacacttg tcaatattca gtrtcaaaac agttgcacta 60
ttgatccatc ttctcccaa tcggccccaag agagaccaca taaaaggaga gtacattttt 120
agccaaataag ctgcaggatg tacacctaacc agacccctta gaaacccctt cagaaaatgg 180
ggactgggttca gggaaaggaaa cttaaaagat caacaaactg ccagcccccacg gactgcagag 240
gctgtcacag ccagatgggg tggccagggtt gccacaaacc caaagcaaaag tttcaaaaata 300
atataaaaatt taaaatggatgg tttccatgg cttttttttt tttttttttt tttttttttt 360
acaaaggcaca attggatgg cacttctaga gacagcagct tcaaaacccag aaaagggtga 420
tgagatggatgg tttccatgg cttttttttt tttttttttt tttttttttt tttttttttt 480
tttcaaggan gcaggaaagc aatccatgg tcaatccatgg ataaaggggaa c 531

<210> 139
<211> 521
<212> DNA
<213> Homo sapien

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<220>
<221> misc_feature
<222> (1)...(521)
<223> n = A,T,C or G

<400> 139
tgggtggca ccatggctgg gatcaccacc atcgaggcgg tgaagcgcaa gatccagg 60
ctgcagcagc aggcagatga tcgagaggag cgagctgagc gcctccagcg agaagttag 120
ggagaaaaggc gggcccggga acaggctgag gctgaggtgg cctcccttggaa ccgttaggatc 180
cagctgggtt aagaagagct ggaccgtgtc caggagccgc tgcccactgc cctgcaaaag 240
ctggaaagaag ctgaaaaagc tgctgatgag agtgagagag gtatgaaagggt tattgaaaac 300
cgggccttaa aagatgaaaga aaagatggaa ctccagaaaa tccaactcaa agaagctaag 360
cacattgcag aagaggcaga taggaagtat gaagaggtgg ctgttaatgtt ggtgatcatt 420
gaaggagact tggAACGCA cagaagggaa gagcttgagc ttggcaaaag tcccgttgc 480
cagagatggg atgaaccaga ttagactgtt ggaccanaac c 521

<210> 140
<211> 571
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(571)
<223> n = A,T,C or G

<400> 140
aggggcngcg ggtgcgtggg ccactgggtg accgacttag cctggccaga ctctcagcac 60
ctggaaagcgc cccgagatgt acagcgttag gctgggaggg aggacttggc ttgagcttg 120
taaactctgc tctgacccctc cttgtcgctt gcatttagat ggctcccgca aagaagggtg 180
gcgagaagaa aaaggccgt tctgccatca acgaagtggt aaccggagaa tacaccatca 240
acattcacaa gcgcattccat ggagtggct tcaagaagcg tgcaccccgq qcaactcaaag 300
agattcggaa atttgcgtt aaggagatgg gaactccaga tgcgtcgattt gacaccaggc 360
tcaacaagaac tgcgtggcc aaaggaataa ggaatgtgcc ataccgaatc cgggtgtgc 420
ctgtccagaa aacgtaatgtt ggatgaaatgtt tcaccaataa agctatatac tttggttacc 480
tatgtacccgtt ttaccacttt caaaaatcta cagacagtca atgtggatgtt gaaactaatcg 540
ctgatcgtca gatcaaataa agttataaaaa t 571

<210> 141
<211> 531
<212> DNA
<213> Homo sapien

<400> 141
tcggggagcca cacttggcccc tcttcctctc caaagsgcca gaacctcctt ctctttggag 60
aatggggagg cctcttggag acacagaggg tttcaccttg gatgacccctt agagaaaattg 120
cccaagaagc ccacccctctg gtcacccaaacctt gcaagacccca cagcagtcag ttgggtcaggc 180
cctgctgttag aaggtcaattt ggttcattt cctgtttccca accaatgggc aggagagaag 240
gcctttatcc ttcgcggccacc catccctctt gtaccacccac ctcaccccttccca agtcgtgtt 300
gtccagcaac ggtaccgtttt acacagtcac ctcacccacca ccatttcacc tcccttgc 360
agctgttagc ctttaggttca ttgcgtgttac acaccgtgaa tccattccca 420
tcagttccattt ccagttggca ccagcctgaa ccattttggta cctgggtgttactggatcc 480
tgtttacaag gtggagtcgg ggcttgcgttca tttgagggttca c 531

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<210> 142  
<211> 491  
<212> DNA  
<213> Homo sapien

<220>  
<221> misc\_feature  
<222> (1)...(491)  
<223> n = A,T,C or G

<400> 142

accttagacag aagggtgggtg agggaggact ggttaggaggc tgaggcaatt ccttggtagt	60
ttgtcctgaa accctactgg aagaagtcagc atgaggcacc tactgagaga agtgccaga	120
aactgctgac tgcatctgtt aagagttAAC agtaaaagagg tagaaagtgtg ttctgaatc	180
agagtggaaag cgtctcaagg gtccccacagt ggaggtccct gagctacctc cttccgtga	240
gtgggaagag tgaagcccat gaagaactga gatgaagcaa ggatggggtt ctggggctcc	300
aggcaagggc tgtgcctct gcagcaggga gccccacagag tcagaagaaa agaactaatic	360
atttgttgcg aaaaaaccttcccggataact agcggaaaac tggaggcggn ggtggggca	420
caggaaagtg gaagtgattt gatggagagc agagaaggct atgcacagtg gccgagtcca	480
cttgtaaaagt g	491

<210> 143

<211> 515  
<212> DNA  
<213> Homo sapien

<400> 143

ttcaagcaat tgtaacaagt atatgttagat tagagttagc aaaatcatat acaattttca	60
tttccagtttgc ctatTTCCA aattttttctg taatgtcgTT aaaattactt aaaaattaac	120
aaagccaaaa attatatttta tgacaagaaa gccatcccta catTAATCTT acttttccac	180
tcaccggccc atctcTTCC tcTTTTCTT aactatGCCA tttAAACTGT tctactggc	240
cgggcgtgtg gctcatgcct gtaatcccAG cattttggGA ggccaaaggca ggcggatcat	300
gaggtcaaga gattgagacc atcctggCCA acatggtaa accccgcctc gactaagaat	360
acaaaaatttta gctggcattt gttggcgcattt cctgtatctt cagctactcg ggaggctgag	420
gcagaagaat cgcttgcacc cgggaggcag aggatgcagt gagccccgat cgcgcactg	480
cactctagcc tggcgacag actgagactc tgctc	515

<210> 144

<211> 340  
<212> DNA  
<213> Homo sapien

<400> 144

tgtgccagtc tacaggccta tcagcagcga ctcccttcaGC aacagatggg gtccccctgtt	60
cagcccaacc ccatgagccc ccagcagcat atgctcccaatcaggccca gtcccccacac	120
ctacaaggcc agcagatccc taattctctc tccaaatcaag tgcgtctcc ccagcctgtc	180
ccttctccac ggccacagtc ccagcccccc cactccagtc cttcccccaag gatgcagcct	240
cagccttctc cacaccacgt ttccccacag acaagttccc cacatcctgg actggtagtt	300
gcccgaggcca accccatgga acaagggcat ttggcagcc	340

<210> 145

<211> 630  
<212> DNA  
<213> Homo sapien

&lt;400&gt; 145

tgtaaaaact	tgttttaat	tttgtataaa	ataaaggtag	tccatgccca	cgggggctgt	60
aggaaatcca	agcagaccag	ctggggtggg	gggatgtac	ctaccctggg	ggactgtctg	120
tcctcaaaaac	gggctgagaa	ggcccgctcaq	ggcccccagg	ccccacagaga	gcctgggat	180
actcccccaa	cccgaggggc	agactggca	gtggggagcc	cccatcgtgc	cccagagg	240
gcccacaggt	gaaggagggg	cctgaggcac	cgcagcctgc	aaccccccagg	gctgcagtcc	300
actaacttt	tacagaataa	aaggaacatg	gggatgggga	aaaaagcacc	aggtcaggca	360
gggcccggagg	gccccagatc	ccaggaggggc	caggactcag	gatgccagca	ccacccctagc	420
agctccccaca	gctccctggca	caggaggccg	ccacggattg	gcacaggccg	ctgctggcca	480
tcacgcccaca	tttggagaac	ttgtcccgac	agaggtcagc	tcggaggagc	tcctcgtggg	540
cacacactgt	acgaacacag	atctccctgt	taatgacgta	cacacggcgg	aggctgcggg	600
gacaggggcac	gggaggtctc	agccccactt				630

&lt;210&gt; 146

&lt;211&gt; 521

&lt;212&gt; DNA

&lt;213&gt; Homo sapien

&lt;400&gt; 146

atggctgtcg	gatttaggtg	gtaatagggg	ctgtggccca	taaatctgaa	gccttgagaa	60
ccttgggtct	ggagagccat	gaagagggaa	ggaaaagagg	gcaagtctg	aacctaacca	120
atgacctgtat	ggattgtctg	accaagacac	agaagtgaag	tctgtgtctg	tgcacttccc	180
acagactgga	gtttttgggt	ctgaatagag	ccagttgtca	aaaaattggg	gttttgggtga	240
agaaatctga	ttgttgtgtg	tattcaatgt	gtgattttaa	aaataaacag	caacaacaat	300
aaaaaacctg	actggctgtt	tttccctgt	attcttaca	actattttt	gaccctctga	360
aaatttattat	acttcaccta	aatggaagac	tgctgtgtt	gtggaaattt	tgtatatttt	420
taatttattt	tattctct	cctttttatt	ttgcctgcag	aatccgttga	gagactaata	480
aggcttaata	tttaatttgc	ttgtttaata	tgtatataaa	t		521

&lt;210&gt; 147

&lt;211&gt; 562

&lt;212&gt; DNA

&lt;213&gt; Homo sapien

&lt;400&gt; 147

ggcatgcgag	cgcactcggc	ggacgcagg	gcggcgggga	gcacacggag	cactgcaggc	60
gcccgggttg	gacagcgtct	tcgctgctc	tggatagtc	tgttttgggg	gatcgaggat	120
actcaccaga	aaccggaaat	gcccggaaacca	atcaatgtcc	gagttaccac	catggatgca	180
gagctggagt	ttgcaatcca	gccaaataca	actggaaaac	agcttttga	tcaggtggta	240
aagactatcg	gcctccggga	agtgtggta	tttggccctcc	actatgtgga	taataaaggaa	300
tttcctacct	ggctgaagct	ggataagaag	gtgtctggcc	aggaggtcag	qaaggagaat	360
cccctccagt	tcaagtccg	ggccaaagtt	ctaccctgaa	gatgtggctg	aggagctcat	420
ccaggacatc	acccggaaac	ttttcttcc	tcaagtgaag	gaaggaatcc	ttagcgatga	480
gatctactgc	cccccttgar	actgcctgtc	tcttgggtc	ctacgcttgc	gatgcggcaag	540
tttggggact	accaccaaga	ag				562

&lt;210&gt; 148

&lt;211&gt; 820

&lt;212&gt; DNA

&lt;213&gt; Homo sapien

&lt;400&gt; 148

gaaggagtcg	ggataactca	cattgatgca	ccccaaattt	aaagcggcat	tcttcggcag	60
gtctctggga	caatctctag	ggtaactacc	tggaaactcg	ttagggtaca	actgaatgt	120
gaaaggaaag	aacacctgca	gaacccggaca	gaaattcacc	ccggcgatca	gctgattgtat	180

ctcggtcgac cagaagtcat ggctaaagat gacgaggacg ttgtcaattc cctgggctt	240
tcgaagttag tccagcagca gtctgaggtt ttccggccgg ttatgcacct ggaccaccag	300
caccagctcc cggggggccc aggtgccagc cttatctaca ttccctcaggg tctgatcaa	360
gttcagctgg tacaccaggg acccggtaccc cagcgtcagg ttgtccgctc gggctgggg	420
accgcgcggaa ccagggaaacgc cgccgacacg ttggagaccc tgccgatgcc cacagccaca	480
gagggggttgt ccccacccgcg gcccgcggca ccccgccggtt gttccggcgtc cagcaacgt	540
ggggcgaggg cctcggttctt cctttgtcgc ccattgtcgc tccagaggac gaagccgcag	600
gcggccaccca cgacgcgtacg gattagcacc ttccgtttgt agatgcggaa cctcatggtc	660
tccaggggccg ggagccgcacg tacagctca gcgtcggcgc cgcgcgttccggcgtc agccgcggct	720
cggcttcgtc tccgtcctctt ccattcagca ccacgggtcc cggaaaaaaacgc tcagccscgg	780
tcccaaccgc accctagctt cgttacactgc geetcgcgttgc	820

&lt;210&gt; 149

&lt;211&gt; 501

&lt;212&gt; DNA

&lt;213&gt; Homo sapien

&lt;400&gt; 149

cagattttta tttgcagtcg tcactggggc cgtttcttgc tgcttatttg tctgttagcc	60
tgctcttcca gctgcattggc caggcgcaag gccttgatga catctcgtag ggctgagaaa	120
tgcttggctt gctggccag agcagatcc gccttgcata caaagggtctc caggtcatag	180
tctggctgtc cggtcatctc agagagctca agccagtcg gtccttgcgt tatgtatctcc	240
ttgagctttt ccatacgctt ctccctcaagc tccctgatct gagtcattggc ttctgtttaag	300
ctggacatct gggaaagacag ttctctctt tccttgata aattgcctgg aatcagcgcc	360
ccgttagagc aggcttccat ctcttctgtt tccatttggaa tcaactgtc tccactgggc	420
ccactgtggg ggctcagctc cttgaccctg ctgcataatct taagggtgtt taaaggatata	480
tcacaggagc ttatgcctgg t	501

&lt;210&gt; 150

&lt;211&gt; 511

&lt;212&gt; DNA

&lt;213&gt; Homo sapien

&lt;220&gt;

&lt;221&gt; misc\_feature

&lt;222&gt; (1)...(511)

&lt;223&gt; n = A,T,C or G

&lt;400&gt; 150

ctccctttgg tacatgaacc caagttgaaa gtggacttaa caaagtatct ggagaaccaa	60
gcattctgtt ttgactttgc atttgatgaa acagcttcga atgaagtgtt ctacaggttc	120
acagcaaggc cactggtaca gacaatctt gaaggtgaaa aagcaacttg ttttgcata	180
ggccagacag gaagttggcaaa gacacatact atggcggag acctctctgg gaaaggccag	240
aatgcattcca aaggatcta tgccatggcc ttccggacg tcttctctg aagaatcaac	300
cctgttaccgc gaagttgggc ctggaaagtct atgtgacatt ctgcagatc tacaatggga	360
agctgtttga cctgtcaaac aagaaggcca agcttgcgcg tgcttggaaa cggcaagcaa	420
caggtgcaag ttgtgggggc ttgcaggaaac atctggntaa ctctgttgc tgatggcant	480
caagatgatc gacatggca gcgcctgcag a	511

&lt;210&gt; 151

&lt;211&gt; 566

&lt;212&gt; DNA

&lt;213&gt; Homo sapien

&lt;400&gt; 151

tcccgaattc aagcgacaaa ttggawagtg aaatggaaga tgccttatcat gaacatcagg	60
caaatcttt gcgcacaagat ctgatgagac gacaggaaga attaagacgc atggaagaac	120
ttcacaatca agaaatgcag aaacgtaaaag aaatgcaatt gaggcaagag gaggaacgc	180
gtagaagaga ggaagagatg atgattcgtc aacgtgagat ggaagaacaa atgaggcgcc	240
aaagagagga aagttacagc cgaatgggc acatggatcc acgggaaaga gacatgcgaa	300
tgggtggcg aggagcaatq aacatgggg atccctatgg ttcaggaggc cagaaatttc	360
cacctctagg aggtggtggt ggcataaggat atgaagctaa tcctggcggtt ccaccagcaa	420
ccatgagtg ggccatgtg ggaagtgaca tgcgtactga gcgcgttggg cagggaggtg	480
cggggcctgt gggggacag ggtcttagag gaatggggcc tggaaactcca gcaggatatg	540
gtagaggag agaagagtac gaagc	566

&lt;210&gt; 152

&lt;211&gt; 518

&lt;212&gt; DNA

&lt;213&gt; Homo sapien

&lt;400&gt; 152

ttcgtgaaga ccctgactgg taagaccatc actctcgaag tggagccccga gtgacaccat	60
tgagaatgtc aaggcaaaaga tccaagacaa ggaaggcata cctccctgacc agcakagggt	120
gatctttgtc gggaaacacgc tggaaatgg acgcacccctg tctgactaca acatcccgaa	180
agagtccacc ctgcacctgg tgctccgtct cagaggtggg atgcaaatct tcgtgaagac	240
cctgactgtt aagaccatca ccctcgaggt ggagccccagt gacaccatcg agaatgtcaa	300
ggcaaagatc caagataagg aaggcatccc tcctgtatcg cagaggttga tctttgtgg	360
gaaacagctg gaagatggac gcaccctgtc tgactacaac atccagaaag agtccactct	420
gcacttggtc ctgcgtttaa ggggggggtgt ctaagtttcc ctttttaagg tttcaacaaa	480
tttcattgca ctttccttca aataaaatgtt ttgcattc	518

&lt;210&gt; 153

&lt;211&gt; 542

&lt;212&gt; DNA

&lt;213&gt; Homo sapien

&lt;400&gt; 153

gcgcggggtgc gtggggccact gggtgaccga cttagccctgg ccagactctc agcacctgg	60
agcgccccca gactgacacgc gtgaggctgg gagggaggac ttggccitgag cttgttaaac	120
tctgctctga gcctccctgt cgctgcatt tagatggctc ccgcaaaagaa ggggtggcgag	180
aagaaaaaagg gccgttctgc catcaacgaa gtggtaacccc gagaatacac catcaacatt	240
cacaagcgca tccatggagt gggcttcaag aagcgtgcac ctccggcact caaagagatt	300
cggaaaatttgc ccatgaaggaa gatggaaact ccagatgtgc gcattgacac caggctcaac	360
aaagctgtct gggccaaagg aataaggaat gtgccatacc gaatccgtgt gcccgtgtcc	420
agaaaaacgtt atgaggatgtt agattcacca aataagctat atactttgtt tacctatgtt	480
cctgttacca ctttcaaaaaa tctacagaca gtcaatgtgg atgagaacta atcgctgatc	540
gt	542

&lt;210&gt; 154

&lt;211&gt; 411

&lt;212&gt; DNA

&lt;213&gt; Homo sapien

&lt;400&gt; 154

aattctttat tttaaatcaac aaactcatct tcctcaagcc ccagaccatg gtggcagcc	60
ctccctctcc atccccctcac cccacccctt agccacagtg aagggaatgg aaaatgagaa	120
gccacgaggg cccctgcccag ggaaggctgc cccagatgtg tggtgagcac agtcagtgc	180
gctgtggctg gggcagcagc tgccacagcc tcctccctat aaattaagtt cctgcagcca	240
cagctgtggg agaagcatac ttgttagaagc aaggccatgc cagcatcaga aggcaagggc	300

agcatacgatg actcccccggcc atggaatgaa cggaggacac agagctcaga gacagaacag  
 ggcaggggga agaaggagag acagaatagg ccagggcatg gcggtgaggg a 360  
 411  
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 <211> 421  
 <212> DNA  
 <213> Homo sapien  
  
 <220>  
 <221> misc\_feature  
 <222> (1)...(421)  
 <223> n = A,T,C or G  
  
 <400> 155  
  
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 actgggtccc taagaaaatcc aaggagaatc ctcggactt ctcggataac cagctgcaag 120  
 agggcaagaa cgtgatcggt ttacagatgg gcaaccaaccg cggggcgtct cangcagga 180  
 tggactggcta cgggatgcca cgccagatcc tctgatccca cccccaggcct tgccctgccc 240  
 ctccccaccaa tggtaatat atatgttagat atatattttt gcaagtgcacat tcccagagag 300  
 cccccagagct ctcaagctcc ttctgtcag ggtgggggt tcaagctgt cctgtcaccc 360  
 ctgaagtgcc tgctggcatc ctctccccca tgcttactaa tacattccct tccccatagc 420  
 C 421  
  
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 <212> DNA  
 <213> Homo sapien  
  
 <400> 156  
  
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 tacctgaaagg acagtggaaa ggttgtcagc atttccagtg agcacctggaa gcctatcacc 240  
 cccaccaaga acaacaaggta gaaagtgtac ctggggcagg atcgggaagc cacggggtc 300  
 ctactgagca ttgatggtga ggatggcatt gtccgtatgg accttgcata gcaagctcaag 360  
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 acttcgtcgg atgaagagtg atccctccctc cttccctggc cttggctgt gacacaagat 480  
 cctccctgcag ggctaggcgg attgttctgg atttccctttt gttttccctt ttaggtttcc 540  
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 gtttggtcta 670  
  
 <210> 157  
 <211> 421  
 <212> DNA  
 <213> Homo sapien  
  
 <400> 157  
  
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 aagaatcgag ttgaaatcaa tgatgtggag cctgaagttt ttaaggaaat gatgtgttcc 180  
 atttacacgg ggaaggctcc aaacctcgac aaaatggctg atgatgttgc ggcagctgtc 240  
 gacaagtatg ccctggagcg cttaaagggtc atgtgtgagg atgccccttg cagtaaccc 300  
 tccgtggaga acgctgcaga aattctcata ctggccgacc tccacagtgc agatcgttg 360  
 aaaactcagg cagtggattt catcaactat catgttcgg atgtttggaa gacctttgg 420

g

421

&lt;210&gt; 158

&lt;211&gt; 321

&lt;212&gt; DNA

&lt;213&gt; Homo sapien

&lt;400&gt; 158

tcgttagccat ttttctgttt ctttggagaa tgacgccaca ctgactgctc attgtcgttg	60
gttccatgcc aatttgtgaa atagaacctc atccggtagt ggagccggag ggacatcttg	120
tcatacaacgg tgatgggtgcg atttggagca taccagagct tgggtttctc gccatacagg	180
gcaaaagaggt tgtgacaaag aggagagata cggcatgcct gtgcagccct gatgcacagt	240
tcctctgtcg tgtactctcc actgcccagc cggaggggct ccctgtccga cagatagaag	300
atcaacttcca cccctggctt g	321

&lt;210&gt; 159

&lt;211&gt; 596

&lt;212&gt; DNA

&lt;213&gt; Homo sapien

&lt;400&gt; 159

tggcacactg ctcttaagaa actatgawga tctgagatTT ttttggatTT gtttttgact	60
cttttggatgt gtaatcatat gtgtctttat agatgtacat acctccctgc acaaatggag	120
gggaaattcat tttcatcaat gggagtgtcc ttgtgtata aaaaccatgc tggtatatgg	180
cttcaaggTT taaaaatgaa agtgacttta aaagaaaata ggggatggtc caggatctcc	240
actgataaga ctgttttaa gtaacttaag gacctttggg tctacaagta tatgtgaaaaa	300
aaatgagact tactgggtga gggaaattcat tgTTTaaaga tggcgtgtg tgggtgtgt	360
tgtgtgtgtg ttgtgtgtg ttttggTT taaggggaggg aatttattat ttaccgttgc	420
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gvctgtataa gtwctaratg cmtccctggg kgttgatTT ccmagatatt gatgatamcc	540
ctttaaaattt taaccygcct tttcccttt gctytcattt aaagtctatt cmmaag	596

&lt;210&gt; 160

&lt;211&gt; 515

&lt;212&gt; DNA

&lt;213&gt; Homo sapien

&lt;400&gt; 160

gggggttaggc tcTTTattAG acggTTattG ctgtactaca gggTCAGAGT gcagtgtaaG	60
cagtgtcaga ggcccccgTT cagccccaaAG atgtggattt tctccctta ttgatcacAG	120
tgggtgggTT tcTTcagaaa agccccAGAG gcaggGAACCA gtgagCTCCa aggTTAGAAAG	180
tggAACTTGGa aggCTTcAGT cacATGCTGc ttccacgcTT ccaggCTGGG cAGCAAGGAG	240
gagatGCCA tgacGTGCCA ggtctccccA tctgacacca gtgaAGTCTG gtggACAGC	300
agccgcacgc ctgcCTCTGC caggAGGCCA atcatggtag gcagcATTGc aggGTcAGAG	360
gtctgAGTCC ggaatAGGAG caggGGCAGG tccCTGCGGA gaggcACTTC tggcCTGAAG	420
acagCTCCAT tgagccccTG cagtACAGGY gtatgcTTT ggaccaAGCC cacAGCCTGG	480
taaggGGCGc ctgcCAGGcC acggGCCAGG aggca	515

&lt;210&gt; 161

&lt;211&gt; 936

&lt;212&gt; DNA

&lt;213&gt; Homo sapien

&lt;400&gt; 161

taatTTCTTA gtcgtttggA atcCTTAAGC atgcaAAAGC tttgaacAGA aggGTTcaca	60
-------------------------------------------------------------------	----

aaggaaccag ggttgtctta tggcatccag ttaagccaga gctggaaatg cctctgggc	120
atccacatca ggagcagaag cacttgactt gtcggctctg ctgccacggt ttggcgccc	180
accacgcccc cgtccaccc tcgtcccttccgtt gcccacgt ctggggcggc caaggctccc	240
aaaattgtatcc tccagctgag acgttatatac atttgcgtgc ttccggaaat gatggccat	300
aaccgaatct tcagcatgag cctttactt ctgttgcattt tgaagaacaa atcccttctt	360
ccactgcccc tcagcacctt catttggttt tcggatatta aattctactt ttgccccggc	420
cttattitga atagccttcc actcatccaa agtcatctt tttggaccct cctctttac	480
ctcttcaact tcatttcctt tattttcagt gtctgcact ggatgatgtt ctgcaccc	540
aggtgttcc tcagtcacat ttgattgatc caagtcaattt aatttgtt tgacagtcc	600
ccagttgtga gatccgctac ctccacgttt gtccctgtgc ttccaggccag atctatcact	660
tccactatgc ctatcaaatt cacgtttgcc acgagaatca aatccatc ctcggcccat	720
tccacgtcca cggccccctc gaccttcc aagaccacca cgacctcgaa taggtcggtc	780
aataatcggt ctatcaactg aaaattcgcc tccttcaccc ttttttcaaa gtggctttc	840
aatcttcgt tcacgaggtg gtcgccttc tggcttcta tcaatttattt tcccttcacc	900
ctgaagtgt tgatcaggc ttcttccaaac tcgtgc	936

&lt;210&gt; 162

&lt;211&gt; 950

&lt;212&gt; DNA

&lt;213&gt; Homo sapien

&lt;400&gt; 162

aagcggatgg acctggagtca gccgaatccct agccccccttcc ctggggcctg ctgtgggtct	60
cgacatcagt gacagacgga agcagcagac catcaaggct acgggaggcc cggggcgctt	120
gcgaagatga agtttggctg cctctcccttc cggcaggctt atgtggctt tgtcttaaat	180
ggaatcaaga ctgtggagac gcgcgtggcgt cctctgtga gcagccagcg gaactgtacc	240
atcgccgtcc acattgtca caggactgg gaaggcgatg cctgtcggtt gctgtgggtt	300
gagagactcg ggatgactcc tgctcagatt caggccttgc tcaggaaagg ggaaaagttt	360
ggtcgaggag tgatagcggg actcggttgc attggggaaa ctttgcattt ccccaagac	420
ttaactcccg atgagggttgc ggaactagaa aatcaagctg cactgaccaa cctgaagcag	480
aagtacctga ctgtgatttc aaaccccagg tggttactgg agccataacc taggaaaggaa	540
ggcaaggatg tattccaggt agacatccca gagcacctga tccctttggg gcatgaagt	600
tgacaagtgtt gggcttctga aaggaatgtt ccrgagaaac cagctaaatc atggcacctt	660
caatttgcctt ctcgtacgca gacctgtata aatttaggtt aagatgaatt tccactgtt	720
tggagatcc caccctactt gcaactgttgc tggtaaacagg ttcccttgc cagatgaagg	780
aagttaggggg tggggcttcc ttgtgtgttgc gcctccttgc gcacacaggg aatgtctcaa	840
gtacttttgc ctttagggtag aaggcaaaacg tgccagtaaa tggctcgtca ttgtctgtt	900
ttttggcttgc gtagtttgc ttgttgcata aataaatgtt ttgttagatgt	950

&lt;210&gt; 163

&lt;211&gt; 475

&lt;212&gt; DNA

&lt;213&gt; Homo sapien

&lt;220&gt;

&lt;221&gt; misc\_feature

&lt;222&gt; (1)...(475)

&lt;223&gt; n = A,T,C or G

&lt;400&gt; 163

tgcagcgccc gccccggcag gtgtcggtt ccagcacggg aggccgtggc ttgttagtttgc	60
tctccggctg cccattgttc tcccacttca cggcgatgtc gctggggatag aagccttgc	120
ccaggcgatgtt caggtgttgc tgggttcttgc tcatctcccttc cccggatggg ggcagggtgt	180
acacactgtgg ttcgtccggc tggccctttgc ctgtggatgtt ggttttctcg atgggggtctg	240
ggaggggctt gttggagacc ttgcacttgc actccttgc attcaaccag tccctgggtc	300

ngacggtagag gacgctnacc acacggtagc ngctgggtga ctgctccctcc cgccggcttgc	360
tcttggcatt atgcacctcc acggcgatcca cgtaccaatt gaacttgacc tcagggtcttgc	420
cgtggctcac gtccaccacc acgcatgtaa cctcaaancct cggnncgctgan cacgc	475
<210> 164	
<211> 476	
<212> DNA	
<213> Homo sapien	
<400> 164	
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ccctgaggtc aagtcaact ggtacgtgga cggcgtggag gtgcataatg ccaagacaaa	120
gccgcgggag gagcagtaca acagcacgtc ccgtgtggtc agcgtccctca ccgtccctgca	180
ccaggactgg ctgaatggca aggagtacaa gtgcaagggtc tccaaacaaag ccctcccaagc	240
ccccatcgag aaaaccatct ccaaagccaa agggcagccc cgagaaccac aggtgtacac	300
cctgccccca tccccggagg agatgaccaa gaaccagggtc agctgaccc gcctggtcaa	360
aggcttcttat cccagcgaca tcgccccgtgg agtgggagag caatgggtag ccggagaaca	420
actacaagac cacgcctccc gtgctggact ccgacacctg ccggcggcc gctcg	476
<210> 165	
<211> 256	
<212> DNA	
<213> Homo sapien	
<220>	
<221> misc_feature	
<222> (1)...(256)	
<223> n = A,T,C or G	
<400> 165	
agcgtggtn cggccgaggt cccaaaccaag gctgcancct ggatgccatc aaagtcttct	60
gcaacatgga gactggtagt acctgcgtgt accccactca gcccagtgtg gcccagaaga	120
actggtagat cagcaagaac cccaaaggaca agaggcatgt ctggtcgcc gagagcatga	180
ccgatggatt ccagttcgag tatggcggcc agggctccga ccctgcccgtat gtggacctgc	240
ccggcggnc gctcg	256
<210> 166	
<211> 332	
<212> DNA	
<213> Homo sapien	
<400> 166	
agcgtggtcg cggccgaggt caagaacccc gcccgcaccc gcccgtaccc caagatgtgc	60
cactctgact ggaagagtgg agagtagtgg attgacccca accaaggctg caacctggat	120
gccatcaaag tcttctgca catggagact ggtgagaccc gcgtgtaccc cactcagccc	180
agtgtggccc agaagaactg gtacatcagc aagaacccc aggacaagag gcatgtctgg	240
ttcggcgaga gcatgaccga tggattccca gtcgagatgt gcggccaggg ctccgaccc	300
gccgatgtgg acctgccccgg gcgcccgctc ga	332
<210> 167	
<211> 332	
<212> DNA	
<213> Homo sapien	
<220>	

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<221> misc_feature
<222> (1)...(332)
<223> n = A,T,C or G

<400> 167
tcgagcggtc gccccggcag gtccacatcg gcagggtcgg agccctggcc gccatactcg      60
aactggaaatc catcggnat gctctcgccg aaccagacat gccttgcnc cttgggggtc      120
ttgctgatgt accagntctt ctgggccaca ctgggcttag tgggttacac gcagggtctca      180
ccantctcca ttgttgcanaa gactttgatg gcatccagggt tgccagcctt gttgggggtca      240
atccagtaact ctccactt ccagacagag tggcacatct tgaggtcagc gcagggtcgg      300
gcgggggtct tgacctcggt cgccgaccacg ct                                332

<210> 168
<211> 276
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(276)
<223> n = A,T,C or G

<400> 168
tcgagcggtc gccccggcag gtcccttcata gagcggttagc tgttttattt gccccggcag      60
cctccataga tnaagttattt gcangagttc ctctccacgt caaatatcca gctggggaaag      120
gatgcacggc aaggcccagt gactgcgttg gctgggtcagtttccata gttgaacata      180
tcgctggagt ggacttcaga atccctgcctt ctgggagcac ttgggacaga ggaatccgt      240
gcattcctgc ttgtggaccc tggccgcgac cacgt                                276

<210> 169
<211> 276
<212> DNA
<213> Homo sapien

<400> 169
agcgtggtcg cggccgagggt ccaccagcag gaatgcagcg gattcctctg tcccaagtgc      60
tcccagaagg caggattctg aagaccactc cagcgatatg ttcaactatg aagaatactg      120
caccgccaac gcagtcaactg ggccttgcgg tgcattccctt ccacgctgggt accttgcgt      180
ggagaggaac tccttcaata acttcatcta tggaggctgc cggggcaata agaacagcta      240
ccgctctgag gaggacctgc ccggggcggcc gctcga                                276

<210> 170
<211> 332
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(332)
<223> n = A,T,C or G

<400> 170
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ttgctgatgt accagttctt ctgggccaca ctgggcttag tgggttacac gcagggtctca      180

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ccagtctcca tggcagaa gacttgatg gcatccaggt tgccgcctt gttggggtca atccagtaact ctccacttt ccagccagaa tggcacatct tgaggtcacg gcangtgcgg gcggggttct tgacctcgcc cgccaccacg ct	240 300 332
<210> 171	
<211> 333	
<212> DNA	
<213> Homo sapien	
<400> 171	
agcgtggtcg cggccgaggt caagaaaccc cgccgcacc tgccgtgacc tcaagatgtg ccactctggc tggaaagagt gagaatgtg gattgacccc aaccaaggct gcaacctgga tgccatcaaa gtctctgca acatggagac tggtaggacc tgccgttacc ccactcagcc cagtgtgcc cagaagaact ggtacatcg caagaacccc aagacaaga ggcatgtctg gctcggcgag agcatgaccg atggattcca gttcgagttat ggccggccagg gtcggaccc tgccgatgtg gacctgcccc ggccggccgct cga	60 120 180 240 300 333
<210> 172	
<211> 527	
<212> DNA	
<213> Homo sapien	
<220>	
<221> misc_feature	
<222> (1)...(527)	
<223> n = A,T,C or G	
<400> 172	
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<210> 173	
<211> 635	
<212> DNA	
<213> Homo sapien	
<220>	
<221> misc_feature	
<222> (1)...(635)	
<223> n = A,T,C or G	
<400> 173	
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cctgggtatg acactggaaa tggtattca	420
gttggcaac aaatgatctt tgangaacat	480
ggcacccca taaggcatag gccaagaaca tacccgnca	540
attaggaca agaagctcn	600
tctcanacaa ncatctcatg gccccatc cangacactt	635
ctgagtacat canttcatgg	
catcctggtg gcactgataa aaacccttac agtta	
<210> 174	
<211> 572	
<212> DNA	
<213> Homo sapien	
<220>	
<221> misc_feature	
<222> (1)...(572)	
<223> n = A,T,C or G	
<400> 174	
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actgtaaagg ttcttcatca gtgccaacag gatgacatga	180
aatgtatgtac tcagaagtgt	240
cctgaaatgg ggcccatgag atgggtgtct gagagagagc	300
ttcttgcctt acattcggcg	360
ggtatggct tggcctatgc cttatggggg tggccgttgt	420
gggcgggtgtg gtccgcctaa	480
aaccatgttc ctcaaagatc atttgttgc	540
caacactggg ttgtctgatcca gaagtgc	572
gaagctgaat accatttcca gtgtcataacc cagggtgggt	
gacgaaaagggt gtctttgaa	
ctgtggaaagg aacatccaag atctctggtc catgaagatt	
gggggtgtgaa agggttacca	
gttggggaaag ctcgtctgtc ttttccttc caatcanggg	
ctcgctcttc tgattattct	
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<210> 175	
<211> 372	
<212> DNA	
<213> Homo sapien	
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<221> misc_feature	
<222> (1)...(372)	
<223> n = A,T,C or G	
<400> 175	
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ttaccgtggg caactctgtc	240
aacgaagct tgaaccaacc tacggatgac tcgtgtttt	300
accctacac agtttcccat	360
tatgccgttg gagatgatgt	372
ggaacgaaatg tctgaatcat gctttaaact gttgtgc	
ccatgacaat	
tgcttanct ttgaaagtgg tcatttcaga tgtgattcat	
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gcggccgctc ga	
<210> 176	
<211> 372	
<212> DNA	
<213> Homo sapien	
<220>	
<221> misc_feature	
<222> (1)...(372)	

<223> n = A,T,C or G

<400> 176

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aaaggcctaag	cactggcaca	acagttaaa	gcctgattca	gacattcggt	cccactcatc	180
tccaaacgca	taatggaaa	ctgtgttaggg	gtcaaagcac	gagtcatecg	taggttggtt	240
caaggcctcg	ntgacagagt	tgcccacggt	aacaacctct	tcccgAACCT	tatgcctctg	300
ctggtcttc	agtgcctcca	ctatgtgtt	gtaggtggta	cctctggta	ggacctcgac	360
cgcgaccacg	ct					372

<210> 177

<211> 269

<212> DNA

<213> Homo sapien

<220>

<221> misc\_feature

<222> (1)...(269)

<223> n = A,T,C or G

<400> 177

agcgtggccg	cggccgaggt	ccattggctg	gaacggcata	aacttggaa	ccagtgatcg	60
tctcagcctt	ggtttccag	ctaatggta	tggnggtctc	agtagcatct	gtcacacgag	120
cccttcttgg	tgggtgaca	ttctccagag	tggtgacaac	accctgagct	ggtctgctt	180
tcaaagtgtc	cttaagagca	tagacactca	cttcataattt	ggcgnccacc	ataagtcttg	240
ataacaaccac	ggaatgacct	gtcaggaac				269

<210> 178

<211> 529

<212> DNA

<213> Homo sapien

<400> 178

tcgagcgccc	gccccggcag	gtcctcagac	cgggttctga	gtacacagtc	agtgtggtt	60
ccttgcacga	tgtatatggag	agccagcccc	tgatttggaa	ccagtcacata	gctattcctg	120
caccaactga	cctgaagttc	actcaggta	cacccacaag	cctgagcgcc	cagtggacac	180
cacccaaatgt	tcaagtcact	ggatatcgag	tgcgggtgac	ccccaaaggag	aagaccggac	240
caatgaaaga	aatcaacctt	gctcctgaca	gctcatccgt	ggttgtatca	ggacttatgg	300
cggccaccaa	atatgaagtg	agtgtctatg	ctcttaagga	cactttgaca	agcagaccac	360
ctcagggtgt	tgtcaccact	ctggagaatg	tcaagccacc	aagaagggt	cgtgtgacag	420
atgtactga	gaccaccatc	accattagct	ggagaaccaa	gactgagacg	atcaactggct	480
tccaaggta	tgccttcca	gccaatggac	ctcgcccg	accacgctt		529

<210> 179

<211> 454

<212> DNA

<213> Homo sapien

<220>

<221> misc\_feature

<222> (1)...(454)

<223> n = A,T,C or G

<400> 179

agcgtggtcg cggccgaggt ctggccgaac tgccagtgt aagggaaat gtacatgtta	60
tagntcttct cgaagtcccc ggcgcaggc tccacgggggt ggtctctgc ctccaggcgc	120
ttctcattct catggatctt cttcacccgc agcttctgtc tctcagtcag aagggttgtg	180
tcctcatccc tctcatacag ggtgaccagg acgttcttga gccagtcggc catgcgcagg	240
gggaattcgg tcagtcaga gtccaggcaa gggggatgt atttgcagg cccgatgttag	300
tccaagtgg a gcttggcc cttcttggtt ccctccaagg tgactttgt ggcaaaagaag	360
tggcaggaaag agtgcaggat ttgttgtca ttgtgcaca ctttctcaaa ctgcggcaatg	420
ggggctgggc agacctgccc gggcgccgc tcga	454
<210> 180	
<211> 454	
<212> DNA	
<213> Homo sapien	
<220>	
<221> misc_feature	
<222> (1)...(454)	
<223> n = A,T,C or G	
<400> 180	
tcgagcggcc gccccggcag gtctgcccag ccccccattgg cgagtttgag aaggngtgca	60
gcaatgacaa caagacattc gactttctt gccacttctt tgccacaaag tgcacccctgg	120
agggcaccaa gaaggggccac aagctccacc tggactacat cgggccttgc aaatacatcc	180
cccttgcct ggactctgag ctgaccgaat tcccccctgcg catgcgggac tggctcaaga	240
acgtcctgtt caccctgtat gagagggatg aggacaacaa cttctgact gagaagcana	300
agctgcgggt gaagaanatc catgagaatg anaagcgcct gnagggcanga gaccaccccg	360
tggagctgtt ggcccgccac ttgcagaaga actataacat gtacatttc cctgtacact	420
ggcagttcgg ccagacctcg gccgcgacca cgct	454
<210> 181	
<211> 102	
<212> DNA	
<213> Homo sapien	
<220>	
<221> misc_feature	
<222> (1)...(102)	
<223> n = A,T,C or G	
<400> 181	
agcgtggntg cggacgacgc ccacaaagcc attgtatgt a gttttanttc agctgcaaan	60
aataaccncca gcatccaccc tactaaccag catatgcaga ca	102
<210> 182	
<211> 337	
<212> DNA	
<213> Homo sapien	
<220>	
<221> misc_feature	
<222> (1)...(337)	
<223> n = A,T,C or G	
<400> 182	
tcgagcggtc gccccggcag gtctggccgg atagcaccgg gcatattttg gaatggatga	60

ggtctggcac cctgagcagc ccagcgagga ctgggtctta gttgagcaat ttggcttagga	120
ggatagtatg cagcacgggtt ctgagtcgtg gggatagctg ccatgaagna acctgaagga	180
ggcgctggct ggtanggggtt gattacaggg ctgggaacag ctcgtacact tgccattctc	240
tgcataatact ggntagttag gcgagcctgg cgcttttgcgtgagc taaagctaca	300
tacaatggct ttgnnggacct cggccgcgac cacgctt	337
<210> 183	
<211> 374	
<212> DNA	
<213> Homo sapien	
<400> 183	
tcgagcggcc gccccggcag gtccattttc tccctgacgg tcccacttct ctccaatctt	60
gtagttcaca ccattgtcat gacaccatct agatgaatca catctgaaat gaccacttcc	120
aaaggctaag cactggcaca acagttaaa gcctgatca gacattcggtt cccactcattc	180
tccaaacggca taatgggaaa ctgtgttaggg gtcaaagcac gagtcatccg taggttggtt	240
caaggcttcg ttgacagaag ttgcccacgg taacaaccc ttcccaacc ttatgcctct	300
gctggtctt caagtgcctc cactatgtatg ttgttaggtgg cacctctggt gaggacctcg	360
gccgcgacca cgct	374
<210> 184	
<211> 375	
<212> DNA	
<213> Homo sapien	
<220>	
<221> misc_feature	
<222> (1)...(375)	
<223> n = A,T,C or G	
<400> 184	
agcgtggttt gcggccgagg tcctcaccan aggtgccacc tacaacatca tagtggaggc	60
actgaaagac cagcagaggc ataagggtcg ggaagagggtt gttaccgtgg gcaactctgt	120
caacgaaggc ttgaaccaac ctacggatga ctctgtctt gacccttaca cagnntcccc	180
ttatgccgtt ggagatgagt gggAACGAAT gtctgaatca ggcttAAAC tgTTGTGCCA	240
gtgcttangc ttggaaagt gtcatttcag atgtgattca tctanatggt gtcatgacaa	300
tggtgngaac tacaagattt gggAGAGTG gnaccgtcag gggAAAAT ggacctgccc	360
ggggcggcnccg ctgcga	375
<210> 185	
<211> 148	
<212> DNA	
<213> Homo sapien	
<220>	
<221> misc_feature	
<222> (1)...(148)	
<223> n = A,T,C or G	
<400> 185	
agcgtggtcg cggcccgagg ctggcttnct gctcangtga ttatcctgaa ccatccaggc	60
caaataagcg ccggctatgc cccctgnattt gattgccaca cggctcacat tgcatgcaag	120
tttgctgagc tgaaggaaaa gattgatc	148
<210> 186	

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<211> 397
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(397)
<223> n = A,T,C or G

<400> 186
tcgagcggcc gccccggcag gtccaattga aacaaacagt tctgagaccg ttcttccacc      60
actgattaag agtggggngg cgggtattag ggataatatt catttagcct tctgagctt      120
ctgggcagac ttggtgacct tgccagctcc agcagccttc tggtccactg ctttgatgac      180
acccaccgca actgtctgtc tcataatcacg aacagcaaag cgacccaaag gtggatagtc      240
tgagaagctc tcaacacaca tgggcttgcc aggaaccata tcaacaatgg gcagcatcac      300
cagacttcaa gaatttaagg gccatcttc agcttttac cagaacggcg atcaatctt      360
tccttcagct cagcaaactt gcatgcaatg tgagccg      397

<210> 187
<211> 584
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(584)
<223> n = A,T,C or G

<400> 187
tcgagcggcc gccccggcag gtccagaggg ctgtgctgaa gtttgctgtc gccactggag      60
ccactccaaat tgctggccgc ttcaactcctg gaaccttcac taaccagatc caggcagcct      120
tccgggagcc acggcttctt gtggntactg acccccaggc tgaccaccag cctctcacgg      180
aggcatctta tgttaaccta cttaccattt cgctgtgtaa cacagattct cctctgcgtc      240
atgtggacat tgccatcccc tgcacaacaaca agggagctca ctcagnggg tttgatgtgg      300
tggatgtctgg ctcggaaagt tctgcgcattt cgtggcacca tttccgtga acacccatgg      360
gangncatgc ctgatctgga cttctacaga gatcctgaag agattaaaaa agaagaacaaq      420
gctgnttgc ganaaaagcaa gtgaccaagg angaaatttc anggtgaaa nggactgcic      480
ccgctcttga attcaactgtc actcaacctg angntgcaga ctggtcttga aggngnacan      540
gggccctctg ggcctattta agcancttcg gtcgcgaaca cgnt      584

<210> 188
<211> 579
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(579)
<223> n = A,T,C or G

<400> 188
agcgtgnntc gccccggagg tgctgaatag gcacagaggg caccgtaca ccttcagacc      60
agtctgcac ctcaggctga gttagcagtga actcaggagc gggagcagtc cattcaccct      120
gaaattccctc cttggncact gccttctcaag cagcagcctg ctcttcttt tcaatcttt      180
caggatctct gttagaagtac agatcaggca tgaccttcca tgggtttca cggaaatgg      240

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tgcacgcat	gcccagaact	tcccgagcca	gcatccacca	catcaaacc	actgagttag	300
ctcccttgtt	gttgcattgg	atgggcaatg	tccacatagc	gcaggagaga	atctgttt	360
cacagcgcaa	tggtaggttg	gttaacataa	gatgcctccg	cgagaagctg	gtggtcagcc	420
ctgggttcaa	gtaccacaa	gaagccgtgg	ctcccgaaag	gctgcctgga	tctggtttagt	480
gaaggntcca	ggagtgaagc	gccacaacaat	tggagttggct	tcagtggcaa	gcagcaaact	540
tcagcacaag	ccctctggac	ctgccccggcg	gccgctcga			579
<210>	189					
<211>	374					
<212>	DNA					
<213>	Homo sapien					
<220>						
<221>	misc_feature					
<222>	(1)...(374)					
<223>	n = A,T,C or G					
<400>	189					
tcgagcggcc	gccccggcag	gtccattttc	tccctgacgg	ncccacttct	ctccaatctt	60
gtagttcaca	ccattgtcat	ggcaccatct	agatgaatca	catctgaaat	gaccacttcc	120
aaaggcctaag	cactggcaca	acagtttaaa	gcctgattca	gacattcggt	cccaactcatc	180
tccaaacggca	taatggaaaa	ctgtgttaggg	gtcaaaggcac	gagtcatccg	taggttgggt	240
caaggcctcg	ttgacagagt	tgcccacggt	aacaacctcn	tcccccgaacc	ttatgcctct	300
gctgggcctt	cagngcctcc	actatgatgn	tgttagggggg	cacctctgggn	gangacctcg	360
gccgcgacca	cgct					374
<210>	190					
<211>	373					
<212>	DNA					
<213>	Homo sapien					
<220>						
<221>	misc_feature					
<222>	(1)...(373)					
<223>	n = A,T,C or G					
<400>	190					
agcgtggtcg	cggccgaggt	cctcaccaga	ggtgccacct	acaacatcat	agtggaggca	60
ctgaaagacc	agcagaggca	taaggctcg	gaagaggttg	ttaccgtggg	caactctgtc	120
aacgaaggct	tgaaccaacc	tacggatgac	tctgtgtttt	acccttacac	agtttcccat	180
tatgccgtt	gagatgagtg	gaaacgaaatg	tctgaatcag	gctttaact	gttgcacag	240
tgcttangct	ttgaaagtgg	gtcatttcag	atgtgattca	tctagatgg	gccatgacaa	300
tggngnngaac	tacaagattg	gagagaagtg	gnaccgnacg	ggagaaaatg	gacctgccc	360
ggcggccgt	cga					373
<210>	191					
<211>	354					
<212>	DNA					
<213>	Homo sapien					
<220>						
<221>	misc_feature					
<222>	(1)...(354)					
<223>	n = A,T,C or G					

<400> 191  
 agcgtggtcg cggccgaggt ccacatggc agggtcggag ccctggccgc cataactcgaa 60  
 ctggaatcca tcggcatgc tctcgccgaa ccagacatgc ctcttgcct tggggtttt 120  
 gctgatgtac cagtcttct gggccacact gggctgagtg gggcacacgc aggtctcacc 180  
 agtctccatg ttgcagaaga ctttgatggc atccagntg caaccttggt tggggtaat 240  
 ccagtaactt ccactttcc agccagatgt gcacatttt aggtcacggc aggtgcggnc 300  
 gggggntttt ggggtgtcccc tctggncttc ggntgnctc natctgctgg ctca 354

<210> 192  
 <211> 587  
 <212> DNA  
 <213> Homo sapien

<220>  
 <221> misc\_feature  
 <222> (1)...(587)  
 <223> n = A,T,C or G

<400> 192  
 tcgagcggcc gccccggcag gtctcgccgt cgcaactgggt atgctggtcc tggggccc 60  
 cccggccctc ctggacacctc tggcccccctt ggtcctccca ggcgtggttt cgacttcagc 120  
 ttccctgcccc agccacaccta agagaaggct cacgatggtg ggcgtacta cccggctgat 180  
 gatgccaatg tggtcgtga ccgtgaccc gagggtggaca ccaccctcaa gagcctgagc 240  
 cagcagatcg agaacatccg gagcccgagag ggcagnncga agaaccncgc cccgacactgc 300  
 cgtgacaccta agatgtgcca ctctgactgg aagagtggag agtactggat tgaccccaac 360  
 caagctgcaa cctgatgccc atcaaagtct tctgcaacat ggagactggt gagacctgcg 420  
 tgtacccac tcagccccgt gtggcccaaa agaactggta catcagcaag aaccccaagg 480  
 acaagaagca tgtctgggtc ggccgagaaca tgaccgatgg attccagttc gagtatggcg 540  
 ggcagggctc cgaccctgcc gatggggacc ttggccgcga acacgt 587

<210> 193  
 <211> 98  
 <212> DNA  
 <213> Homo sapien

<220>  
 <221> misc\_feature  
 <222> (1)...(98)  
 <223> n = A,T,C or G

<400> 193  
 agcgtggnnn cggccgaggt ataaatatcc agnccatatac ctccctccac acgctganag 60  
 atgaagctgt ncaaagatct cagggtggaa aaaaccat 98

<210> 194  
 <211> 240  
 <212> DNA  
 <213> Homo sapien

<400> 194  
 tcgagcggcc gccccggcag gtccttcaga cttggactgt gtcacactgc caggcttcca 60  
 gggctccaaac ttgcagacgg cctgttgtgg gacagttctt gtaatcgca aagcaaccat 120  
 ggaagacctg gggaaaaca ccatggttttt atccaccctg agatcttga acaacttcat 180  
 ctctcagcgt gcggaggag gctctggact ggatatttctt acctcgccgcg cgaccacgt 240

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<210> 195
<211> 400
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(400)
<223> n = A,T,C or G

<400> 195
cgagcgggcg accgggcagg tncagactcc aatccanana accatcaagc cagatgtcag      60
aagctacacc atcacaggtt tacaaccagg cactgactac aaganctacc tgcacacctt      120
gaatgacaat gctcgagct cccctgtggt catcgacgcc tccactgcca ttgatgcacc      180
atccaacctg cgtttcctgg ccaccacacc caattccttg ctgttatcat ggtagccgccc      240
acgtgccagg attaccggta catcatcnag tatganaagc ctgggcctcc tcccagagaa      300
gnggtccctc ggccecccc tgntgtccca nagntacta ttactgngcc ngcaaccggc      360
aaccgatatac natttgnca ttggccttca acaataatta      400

<210> 196
<211> 494
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(494)
<223> n = A,T,C or G

<400> 196
agcgtgggtc gccccgang tcctgtcaga gtggcactgg tagaagttcc aggaaccctg      60
aactgttaagg gtttttcata agngccaaca ggatgacatg aaatgtatgtt ctcagaagtt      120
tccttggatg gggcccatga gatgggtgtc tgagagagag cttcttgncc tgtcttttc      180
cttccaaatca ggggtcgtt cttctgatca ttcttcaggc caatgacata aattgttatat      240
tcgggtcccg gntccaggcc agtaatagta ncctctgtga caccaggcgc gngccgaggg      300
accacttctc tgggaggaga cccaggcttc tcataacttga tgatgttaacc ggtatccctg      360
gcacgtggcg gctccatga taccagcaag gaattgggggt gtggtggccca ggaaacgcag      420
gttggatgn gcatcaatgg cagtggaggc cgtcgtatgac cacaggggggac gctccgacat      480
tgtcattcaa ggtt      494

<210> 197
<211> 118
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(118)
<223> n = A,T,C or G

<400> 197
agcgtggncg cggccgaggt gcagcgcggg ctgtgccacc ttctgtctc tgcccaacgta      60
taaggagggt ncctgcccccc aggagaacat taactntccc cagctcgccctc tctggccg      118

<210> 198

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<211> 403
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(403)
<223> n = A,T,C or G

<400> 198
tcgagcgccc gccccggcag gtttttttgc ctgaaagtgg ntactttatt ggntgggaaa      60
gggagaagct gtggtcagcc caagaggggaa tacagagncc cgaaaaaggg gagggcaggt      120
gggctggAAC cagacgcagg gccaggcaga aactttctt cctcaactgt cagcctggg      180
gtggctggag ctcanaaaatt gggagtgaca caggacacct tcccacagcc attgcggcgg      240
catttcatct ggccaggaca ctggctgtcc acctggcact ggccccgaca gaagccccqag      300
ctggggaaag ttaatgttca cctgggggca ggaaccctcc ttatcattgn gcagagagca      360
gaaggtggca cagccgcgc tgcacctcg cccgcaccac gct      403

<210> 199
<211> 167
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(167)
<223> n = A,T,C or G

<400> 199
tcgagcgccc gccccggcag gtccaccata agtcctgata caaccacgga tgagctgtca      60
ggagcaaggt tgatttctt cattggccg gncttctct tgggggnac ccgcactcga      120
tatccagtga gctgaacatt gggtgccgtc cactggcgc tcaggc      167

<210> 200
<211> 252
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(252)
<223> n = A,T,C or G

<400> 200
tcgagcggtt cggccggca ggtccaccac acccaattcc ttgctggtat catggcagcc      60
gccacgtgcc aggattaccg gctacatcat caagtatgag aagcctgggt ctccctccag      120
agaagcggtc cctcgcccccc gcccctgggt cacagaggct actattactg gcctggaaacc      180
gggaaccgaa tatacaattt atgtcattgn cctgaagaat aatcannaan agcgancccc      240
tgattggaag ga      252

<210> 201
<211> 91
<212> DNA
<213> Homo sapien

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<400> 201
agcgtggtcg cggccgaggt tgtacaagct tttttttt tttttttt tttttttt      60
tttttttt tttttttt tttttttt t          91

<210> 202
<211> 368
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(368)
<223> n = A,T,C or G

<400> 202
tcgagcgnc gccccggcag gtctgccaa accaagattg gccccggccg catccacaca      60
gtccgtgtgc ggggaggtaa caagaaaatac cgtgccctga ggttggacgt ggggaatttc    120
tcctgggct cagagtggta tactcgtaaa acaaggatca tcgatgtgt ctacaatgca    180
tctaataacg agctgggtcg taccaaagacc ctggtaaaga attgcattgt gctcatcgac    240
agcacacccgt accgacagtg gtacgagtcc cactatgcgc tgcccctggg ccgcaagaag    300
ggagccaagc tgactcctga ggaagaagag attttaaaca aaaaacgatc taaaaaaaaaa    360
aaaacaat          368

<210> 203
<211> 340
<212> DNA
<213> Homo sapien

<400> 203
agcgtggtcg cggccgaggt gaaatggtat tcagcttcct ggcacttctg gtcagcaacc      60
cagtgttggg caacaaatga tctttgagga acatggttt aggccgacca caccgcccac    120
aacggccacc cccataaggc ataggccaag accatacccg ccgaatgttag gacaagaagc    180
tctctctcag acaaccatct catggggcccc attccaggac acttctgagt acatcatttc    240
atgtcattctt gttggcactg atgaagaacc cttacagttc aggttcctg gaacttctac    300
cagtgccact ctgacaggac ctgcccgggc ggccgctcga          340

<210> 204
<211> 341
<212> DNA
<213> Homo sapien

<400> 204
tcgagcgccc gccccggcag gtcctgtcaag agtggcactg gtagaagttc caggaaccct      60
gaactgttaag gtttcttcat cagtgccaaac aggatgacat gaaatgatgt actcagaagt    120
gtcctggaaat gggggcccatg agatggttgt ctgagagaga gcttcttgc ctacattcgg    180
cggttatgtt cttggcctat gccttatggg ggtggccgtt gtggccgtg tggtccgcct    240
aaaaccatgt tcctcaaaga tcatttgttg cccaacactg ggttgcgtac cagaagtgcc    300
aggaagctga ataccatttc acctcgcccg cgaccacgct a          341

<210> 205
<211> 770
<212> DNA
<213> Homo sapien

<220>

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<221> misc_feature
<222> (1)...(770)
<223> n = A,T,C or G

<400> 205
tcgagcggcc gccccggcag gtctcccttc ttgcggccca ggggcagcgc atagtggac      60
tcgtaccact gtcggtaacgg tttgtgtcg atgagcacga tgcatttctt caccagggtc      120
tttgtaccaa ccagctcggtt attagatgca ttgttagacaa catcgatgtat cttgttttta      180
cgagtacaac actctgagcc ccaggagaaa ttcccccacgt ccaacctcag ggcacggtat      240
ttcttgttac ctccccgcac acggactgtg tggatgcggc gggggccaag ctgactcctg      300
aggaagaaga gattttaaac aaaaaacgt ctaaaaaaat tcagaagaaa tatgtatgaaa      360
ggaaaaagaa tgccaaaatc agcagtctcc tggaggagca gttccagcag ggcaagctc      420
ttgcgtgcat cgcttcaagg cggggacagt gtgaccgagc agatggctat gtgctagagg      480
gcaaaagaat ggagttctat cttaaagaaaa tcagggccca gaatggtgng tcttcaacta      540
atccaaaggg gagtttcaga ccagtgcata cagcaaaaac attgatactg ntggccaaat      600
ttattggtc agggcttgca cantangann ggctgggtct tggggcttgg attggnacaa      660
gctttggcag cctttcttt gttttgcca aaaacctttt gntgaagang anacctnggg      720
cggaccctt aaccgattcc acnccnngng gcgttctang gncccncttgcg      770

<210> 206
<211> 810
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(810)
<223> n = A,T,C or G

<400> 206
agcgtggtcg cggccgaggt ctgctgcttc agcgaagggt ttctggcata accaatgata      60
aggctgcca agactgttcc aataccagca ccagaaccag ccactcttac tggatgcagca      120
cctgaccaa taaatttggc agcagtatca atgtctctgc tgattgcact ggtctgaaac      180
tcccttttggta ttagctgaga cacaccatcc tggggcctga ttttcctaag atagaactcc      240
aactcttgc cctcttagcac atagccatct gctcggtcac actgtcccgg ccttgaagcg      300
atgcacgcaa gaagcttgcc ctgctggAAC tggatgcact ggtcttggca      360
ttctttttcc ttcatcata ttctttctga attttttag atgtttttt gttttaaatc      420
tcttcttctt caggagtcag ctggggccccc gcccgcataccca cacagtccgt gtgcggggag      480
gtaacaagaa ataccgtgcc ctgagggttgg acgtggggaa ttcttcttgg ggctcagagt      540
ggtgtactcg taaaacaagg atcatcgatg gtgnctacaa tgcataat aacgagctgg      600
gtcggaccca aagaacctgg ngaanaaaatg gatcgncatca tcgacaggac accgtacccg      660
acaggggnac gantcccaact atgcgttgc ccctggggcc caanaaagga aaactgccc      720
ggcggccntc gaaagcccaa ttntggaaaa aatccatcac actggggngc cngtcgagca      780
tgcatntana ggggcccatt cccctnann      810

<210> 207
<211> 257
<212> DNA
<213> Homo sapien

<400> 207
tcgagcggcc gccccggcag gtccccaacc aaggctgcaaa cctggatgcc atcaaagtct      60
tctgcaacat ggagactggg gagacctgcg ttttacccac tcagcccagt gtggcccaga      120
agaactgta catcgcaag aaccccaagg acaagaggca ttttctggcc ggcgagagca      180
tgaccgatgg attccagttc gagttatggcg gccaggctc cgaccctgccc gatgtggacc      240

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tcggccgcga ccacgct	257
<210> 208	
<211> 257	
<212> DNA	
<213> Homo sapien	
<400> 208	
agcgtggtcg cggccgagggt ccacatcgcc agggtcggag ccctggccgc cataactcgaa	60
cttggaaatcca tcggcatgc tctcgccgaa ccagacatgc ctctgtcct tggggttctt	120
gctgtatgtac cagttttctt gggccacact gggctgagtg gggtacacgc aggtctcacc	180
agtctccatg ttgcagaaga ctttgatggc atccagggtt cagccttggt tggggacactg	240
cccgccgcgc cgctcga	257
<210> 209	
<211> 747	
<212> DNA	
<213> Homo sapien	
<220>	
<221> misc_feature	
<222> (1)...(747)	
<223> n = A,T,C or G	
<400> 209	
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ccacgtgcca ggattaccgg ctacatcatc aagtatgaga agcctgggtc ttctcccaga	120
gaagtgggcc ctcggcccg ccctgggtgc acagaggcta ctattactgg ccttggaaaccg	180
ggaaccgaat atacaattta tgcattgcc ctgaagaata atcagaagag cgagcccttg	240
atttggaaagga aaaagacaga cgagcttccc caactggtaa cccttccaca ccccaatctt	300
catggaccag agatcttggta ttgttcccttcc acagttcaaa agacccctt cgtcacccac	360
cctgggtatg acactggaaa tggatttcag ctccctggca cttctggta gcaacccagt	420
gttgggcaac aaatgatctt tgaggaacat ggnttttaggc ggaccacacc gcccacaacg	480
gccacccccc taaggcatag gccaaagacca taccggccga atgtaggaca agaagctntn	540
tntcanacac catntnatgg gccccattcc aggacacttc tgagtagatc atttatgnca	600
tctgtggcac ttgtataaaa cccttacagt tcagggttctt ggaactttt ccaggcctnt	660
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cgnncactgg ngaaaatgg tactgtt	747
<210> 210	
<211> 872	
<212> DNA	
<213> Homo sapien	
<220>	
<221> misc_feature	
<222> (1)...(872)	
<223> n = A,T,C or G	
<400> 210	
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gcgttacaaa ctccttaggag ggcttgcgtgt gggaggcc tgcgtatggtg tgctgcgggt	120
catcatggag agtggggcca aaggctgcga gttgtgttg tctngaaac tccnaggaca	180
ngagggctaa attccatgaa gttgtggat ggctgtatga tccacaatcg gagaccctgt	240
taactactac cgtctnaccn cctgctgtnc nccccnntt ctgtctnaana catngggntn	300

ntncttgcc ntccttggtt ngnatnna atngctncc cttcntanc nctactngt	60
ccanantgg ccttaaaa atccncctt cctnnncac tttcanntn tttnnntcgta	120
aaccctatna nttnattan atnnnnnnn nctcccccc ctntcatn anccnatang	180
ctnnnaantc cttnannct ccccccnn ncnctntac tnantnctt tnnccattn	240
cnnagcttt tcnttaana taatgngcc nngctctnca ntctacnac ntgnnaatn	300
cccccncccc cnancgnntt ttgacctnn naacctctt tccttccc tncnnaaatn	360
ncnnanttcc ncntccnn nttcggnnt ntcctnctt tccannnet tcantctanc	420
ncnctncaac ttatccc ntcateccctt ntctttaca nncccccnn tctactcnnc	480
nntncattna nattgaaac tnccacnnct anttnccn tctacnntt ttattnncg	540
ntcnctctac ntaatantt aatnntnt cn	600
<210> 211	660
<211> 517	720
<212> DNA	780
<213> Homo sapien	840
<220>	872
<221> misc_feature	
<222> (1)...(517)	
<223> n = A,T,C or G	
<400> 211	
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gggcattggca ggccgctctg gttccacc cttctgtct gagatgggg tggggcag	120
tatctcatct ttgggttcca caatgctcac gtggtcaggc aggggcttct tagggccat	180
tttaccaggc gggccccagg gcagcatgat cttcacccctt atgcccagca caccctgtt	240
gagcaacacg tggcgacaaa gcagtgtcaa cgtagtaagt taacagggtc tccgctgtt	300
atcatcaggc catccacaaa cttcatggat ttagccctt ctccctggag tttcccagac	360
accacaacct cgcagccccc ggccccactc tccatgtga accgcagcac accatagcag	420
gcccccccgca caagcaagcc ctccctaagaa ttgttaacgc ananactctg ctggcaatgg	480
cacacaaaacc tctagtgac ctggncgcg accacgc	540
<210> 212	
<211> 695	
<212> DNA	
<213> Homo sapien	
<220>	
<221> misc_feature	
<222> (1)...(695)	
<223> n = A,T,C or G	
<400> 212	
tcgagcggcc gccccggcag gtctggtcca ggatagcctg cgagtccccc tactgctact	60
ccagacttga catcatatga atcatactgg ggagaatagt tctgaggacc agtagggcat	120
gattcacaaga ttccaggggg gccaggagaa ccaggggacc ctgggtgtcc tggaaatccca	180
gggtcaccat ttctcccagg aataccagga gggcctggat ctcccttggg gccttggagg	240
ccttggaccat taggaggcgc agtaggagca gttggaggct gtgggcaaac tgccacaat	300
tctccaaatg gaatttctgg gttggggcag tctaatctt gatccgtcac atattatgtc	360
atcgccagaga acggatctg agtcacagac acatattgg catgggtctg gcttccagac	420
atctctatcc gncataggac tgaccaagat gggaaatcc tccttcaaca agcttntgt	480
tgtgccaatataataatgtgg gatgaagcag accgagaagt anccagctcc ctttttgc	540
caaagcncatca tcatgtctaa atatcagaca tgagacttct ttgggcaaaa aaggagaaaa	600
agaaaaaagca gttcaaagta nccnccatca agttgggtcc ttgcccnncc agcaccggg	660
ccccgttata aaacacacncc ggcggaccc ccctt	695

<210> 213  
 <211> 804  
 <212> DNA  
 <213> Homo sapien

<220>  
 <221> misc\_feature  
 <222> (1)...(804)  
 <223> n = A,T,C or G

<400> 213

agcgtggtcg cggccgaggt gtttatgac	gggcgggtg ctgaaggca	gggaacaact	60
tgtatggct acttttaact gctttctt ttcctttt	gcacaaagag tctcatgtct		120
gatatttaga catgatgagc ttgtgcaaa	agggagctg gctacttetc	gtctgttcc	180
atcccactat tattttggca caacaggaag	ctgttgagg aggatgttcc	catcttggtc	240
agtccatatgc ggatagagat gtcttggaa	cagaaccatg ccaaataatgt	gtctgtgact	300
caggatccgt tctctgcgt	gacataataat gtgacgatca	agaatttagac	360
cagaaattcc atttggagaa ttttgtgcag	tttgcacaca	gcctccaact	420
gcctccctaa tggtcaagga cctcaaggcc	ccaaggaga	tccaggccct	480
ctgggagaaa tggtaccct gtttccag	gacaaccagg	gtccccctgtt	540
cccttggaaat cnngnnaatc atgcctact	ggtcctaaaa	ctattctccc	600
tatgtatgtca agtctggat agcnagtang	gangactcg	caggctattc	660
ctgcccgggg ggcgttcgaa agcccgaatc	tgcananntn	tgaccanac	720
gagctgcattt aaaagggccaa	cnttacact	ggcggccgtc	780
tttttanancg cgngnctggg	agngnggggg	antacaatta	
		ctngccggcg	804

<210> 214

<211> 594  
 <212> DNA  
 <213> Homo sapien

<220>

<221> misc\_feature  
 <222> (1)...(594)  
 <223> n = A,T,C or G

<400> 214

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ctggaatcca tcggcatgc ttcgcccga	ccagacatgc ctcttgtct	tgggttctt	120
gctgatgtac cagttttctt	ggccacact gggctgatgt	gggtacacgc	180
agtctccatg ttgcagaaga	atccagtttgc	caggcttggt	240
ccagtaacttcc	agtcagatgt	gcacatcttgc	300
ggggttcttgc	gggttccct	aggtcacggc	360
gagggttgttgc	ctgggctccg	tcaggcttgc	420
gtagcggcca	atctgttgc	ttggcatcat	480
ccagcgctgg	ccatcttgc	cagcccggtt	540
gaggaccagg	angtggctgg	ggcaggact	
gggaccaana	ggtccaggaa	gaagtgcggaa	
ggaccagcat	gaccccgag	ccctggcccg	594

<210> 215

<211> 590  
 <212> DNA  
 <213> Homo sapien

<220>

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<221> misc_feature
<222> (1)...(590)
<223> n = A,T,C or G

<400> 215
tcgagcgnc gccccggcag gtctcgccgt cgcaactggtg atgctggtcc tggggccc 60
ccggccctc ctggacacctc tgggtccccct ggctcccttca gcgcgtggttt cgacttcagc 120
ttccctcccc agccacacctca agagaaggct cacgatggtg gccgtacta cccggctgtat 180
gatgcctaattg tggttcgtga ccgtgacacctc gaggttgaca ccacccctcaa gagectgagc 240
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cgtgacacctca agatgtgcca ctctgactgg aagagtggag agtaactggat tgaccccaac 360
caaggctgca acctggatgc catcaaagtc ttctgcaaca tggagactgg tgagacacctc 420
gtgtacccca ctcagcccgag tggggcccaag aagaactggt acatcagcaa gaaccccaag 480
gacaagagggc atgtctggtt cggcgagagc atgaccgtat gatccagtt cgagtatggc 540
ggccaggggct cccacccctgc cgatgtggac ctccggccgc gaccaccctt 590

<210> 216
<211> 801
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(801)
<223> n = A,T,C or G

<400> 216
tngagcgccc gccccggcag gntgnnaacg ctggccttgc tggcccttcc ggcaaggctg 60
gtgaagatgg tcacccctgga aaacccggac gacctggta gagaggagtt gttggaccac 120
agggtgtctg tgggtttccctt ggaactccctg gacttccctgg ctccaaaggc attagggac 180
acaatggctt ggtatggattt aaggggacaggcc cccgtgtcc tgggtgtaaag ggtgaacctg 240
gtggccctgg tggaaatggaa actccagggtc aaacaggagc ccgtgggctt cctgggtgaga 300
gaggaccctg tgggtgcccc tggcccanac ctcggcccgcc accacgttac gcccgaattt 360
ccagcacact ggnngccgtt actantggat ccgagctcggtt accatggat tggctaatca 420
tggtcatacg tggcccttgn tggaaattgtt tatccgctca caatttcaca cancatacga 480
agccggaaag cataaaagtgtt aaagccctgg ggtgtataatg agttagctaa ctencattaa 540
attgcgttgc gctcaactgcc cgcttttcca nnngggaaac cttggcntng ccngcttgcn 600
ttaantggaa tccgcnacc cccggggaaa agncgttttgcgtattggg gcncttttc 660
ccttcctcg gnttacttga ntantgggc tttggncgt tcgggttgng gegannggt 720
tcaacntcac nccaaaggng gnaanacggt tttccanaa tccgggggnt ancccaangn 780
aaaacatnng ncnaangggc t 801

<210> 217
<211> 349
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(349)
<223> n = A,T,C or G

<400> 217
agcgtggtn gccccggagg tctggcccaag gggcaccaac acgtcccttc tcaccaggaa 60
gccccacgggc tcctgttga cctggagttc cattttcacc agggcacca ggttcacctt 120

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tcacaccagg agcaccgggc tgccttca atccatncag accattgtgn cccctaatgc	180
cttgaagcc aggaagtcca ggagttccag ggaaaccacc gagcaccctg tggccaaca	240
actcctctt caccaggctcg tccgggtttt ccagggtac catttcacc agcettgcca	300
ggaggaccag caggaccagg gttaccaacc tgccggcg gcccgtcg	349
<210> 218	
<211> 372	
<212> DNA	
<213> Homo sapien	
<400> 218	
tcgagcggcc gccccggcag gtccatttc tccctgacgg tcccacttct ctccaatctt	60
gtagttcaca ccattgtcat ggccatctt agatgaatca catctgaaat gaccacttcc	120
aaaggctaag cactggcaca acagttaaa gcctgatca gacattcggtt cccactcata	180
tccaaacggca taatggaaa ctgtgttaggg gtcaaagcac gagtcatccg tagttgggt	240
caaggcttcg ttgacagagt tgcccacggt aacaacctt tcccaaacct tatgcctctg	300
ctggctttc agtgccctca ctatgtgtt gtaggtggca cctctggta ggacactcgcc	360
cgcgaccacg ct	372
<210> 219	
<211> 374	
<212> DNA	
<213> Homo sapien	
<400> 219	
agcgtggctcg cggccggaggt cctcaccaga ggtgccacct acaacatcat agtggaggca	60
ctgaaagacc agcagaggca taaggttcgg gaagagggtt ttaccgtggg caactctgtc	120
aacgaaggct tgaaccaacc tacggatgac tcgtgctttt accccctacac agtttccat	180
tatgccgtt gagatgatgtt ggaacgaatg tctgaatcatc gctttaact gttgtgccag	240
tgcttaggtt ttggaaatgtt tcatttcaag atgtgattca tctagatggt gccatgacaa	300
tggtgtgaac tacaagattt gagaatgtt ggaccgtcag ggagaaaaatg gacctgcccc	360
ggccggccgc tcga	374
<210> 220	
<211> 828	
<212> DNA	
<213> Homo sapien	
<220>	
<221> misc_feature	
<222> (1)...(828)	
<223> n = A,T,C or G	
<400> 220	
tcgagcgnnc gccccggcag gtccagtagt gccttcggga ctgggttac ccccaaggct	60
gcggcagttt tcacagcgcc agccccgtg gcctccaaag catgtgcagg agcaaatggc	120
accgagatat tccttctgcc actgttctcc tacgtgttat gtctccat catcgtaaca	180
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catttggctg gctctatagt ttggggaaag ttgttggaa ctgtgccact gacctttact	300
tcctcccttctt ctactggagc ttctgtaccc tccacttctg ctgtgtttaa atatgggtt	360
cttctatcaa ttccattgac agtacccact tctccaaac atccaggaa atatgtgattt	420
cagagcgatt aggagaacca aattatgggg cagaataaag gggctttcc acaggttttc	480
ctttggagga agatttcagt ggtgacttta aaagaataact caacagtgtc ttcatcccc	540
tagcaaaaga agaaacngta aatgtatggaa ngcttctgga gatgcnca tttaagggac	600
ncccaact tcaccatcta caggacctac ttcaagtta annaagnac atantctgac	660

tcanaaagga cccaaatggc nccatggca gcactttag cctttccct ggggaaaann	720
ttacnttcctt aaancctngg ccnnngaccc cttaaagncca aattntggaa aanttcctn	780
cnnctgggg gcngttcnac atgcnttta agggccaaat tnccccnt	828
<210> 221	
<211> 476	
<212> DNA	
<213> Homo sapien	
<400> 221	
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ccaggcgagg caggctgacc tgggtcttgg tcatctcctc ccgggatggg ggcagggtgt	180
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ggaggggctt gttggagacc ttgcacttgt actccctgcc attcagccag tcctgggtca	300
ggacgggtgag gacgctgacc acacggtaac tgctgttgta ctgtcttcc cgccggcttt	360
tcttggcatt atgcaccccttcc acgcccgtcca cgtaccgtt gaacttgacc tcagggtctt	420
cgtggctcac gtccaccacc acgcatgtaa cctcagaccc cggccgcgac cacgct	476
<210> 222	
<211> 477	
<212> DNA	
<213> Homo sapien	
<400> 222	
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ccctgaggct aagttaact ggtacgtgga cggcggtggag gtgcataatg ccaagacaaa	120
gcccggggag gacgactaca acagcacgta ccgtgtggc aegtcctca ccgtcctgca	180
ccaggactgg ctgaatggca agggactaca gtgcaaggc tccaaacaaag ccctcccagc	240
ccccatcgag aaaaccatct ccaaagccaa agggcaagcc ccgagaacca caggtgtaca	300
ccctgcccccc atccccggag gagatgacca agaaccaggc cagcctgacc tgcctggc	360
aaggcttcta tcccaagccac atgcgggtgg agtgggagag caatggcag ccggagaaca	420
actacaagac caccgcctcc gtgtggact ccgacacctg cccggccggc cgctcga	477
<210> 223	
<211> 361	
<212> DNA	
<213> Homo sapien	
<400> 223	
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gttacagagc tccgtatgggt gaaaccattt acatagagac tgcctctgtc cagggtgtag	120
ggcccccagct cagtgatgcc gtgggtcagg tggctca gtc tccactacag ccgtctctcg	180
tccagttccag ggctttttggg gtcaggacga tgggtgcaga cagcatccac tctgggtgg	240
gccccatct tctcaggcct gagcaaggc agtctcaac cagactacag agagctgaca	300
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t	361
<210> 224	
<211> 361	
<212> DNA	
<213> Homo sapien	
<400> 224	
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gtgtcagctc tctgtactct ggttgcagac tgaccttgc caggcctgag aaggatgggg	120
cagccaccag agtggatgt gtcgcaccc atcgctctga ccccaaaagc cctggactgg	180
acagagagcg gctgtactgg aagctgagcc agctgaccca cggcatcaact gagctgggccc	240
cctacaccct ggacagggac agtctctatg tcaatggttt caccatcgagctctgtac	300
ccaccaccag caccggggtg gtcagcgagg agccattcaa cctgcccggg cggccgctcg	360
a	361
<210> 225	
<211> 766	
<212> DNA	
<213> Homo sapien	
<220>	
<221> misc_feature	
<222> (1)...(766)	
<223> n = A,T,C or G	
<400> 225	
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actgttaagggt ttcttcatca gtgcacacag gatgacatga aatgtatgtac tcagaagtgt	120
ccttggaaatgg ggcccatgag atgggttgtt gggagagac ttctgttgc acattcggcg	180
ggtatgggtt tggccttatgc ctatggggg tggccgttgtt gggccgtgtt gtccgcctaa	240
aaccatgttc ctcaaaagatc atttggtgc caacactggg ttgtgtacca gaagtgcac	300
gaagctgaat accatttcca gtgtcataacc cagggtgggt gacgaaagggt gtctttgaa	360
ctgttggaaagg aacatccaag atctctggtc catgaagatt ggggtgttga aggggttacca	420
gttggggaaag ctcgtctgtc tttttcccttc caatcagggg ctcgtcttc tgattattct	480
tcagggaat gacataaaatt gtatattcgg tccccgttcc aggccagtaa tagtagcctc	540
tgtgacacca gggcggggcc gagggacccct tctnttgaa gagaccagct tctcataactt	600
gatgatgagn ccggtaatcc tggcacgtgg nggttgcattt atnccaccaa gaaaatnggn	660
ggggggggac ctgccccggc gcgcgttccaa agcccaattt cacacacttg gngggccgtac	720
tatggatccc actcngtcca acttggngga atatggcata actttt	766
<210> 226	
<211> 364	
<212> DNA	
<213> Homo sapien	
<400> 226	
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acagttgggt agccaatctg cagacagaca ctggcaacat tgcggacacc ctccaggaag	180
cgagaatgca gagtttcctc tgtgatatca agcacttcg ggtttagat gtcgcatttgc	240
tcgaacacct gctggatgac cagcccaaaag gagaaggggg agatgttgcat gatgttgcac	300
agcgtggctt cgctggctcc cactttgtct ccagtcttgc tcagacccctg gccgcgacca	360
cgct	364
<210> 227	
<211> 275	
<212> DNA	
<213> Homo sapien	
<400> 227	
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ggtgaccgtg cccttcacca acttcggcac ccagacccat acctgcaacg tagatcacaa	120
ggcccaac accaagggtgg acaagagagt tgagccaaa tcttgcata aaactcacac	180

atgcccaccc tgcccagcac ctgaactcct ggggggaccg tcagtcttcc tcttcccccg 240  
catccccctt ccaaacctgc ccggggggcc gctcg 275

<210> 228  
<211> 275  
<212> DNA  
<213> Homo sapien

<400> 228  
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ccccccaggag ttcaagggtct gggcacggtg ggcatgtgtg agtttgtca caagatttgg 120  
gctcaactct cttgtccacc ttgggtgtgc tgggcttgtg atctacgttg caggtgttagg 180  
tctgggtgcc gaagttgctg gaggggcacgg tcaccacgt gctgaggag tagagtccctg 240  
aggactgttag gacagacctc ggccgcgacc acgt 275

<210> 229  
<211> 40  
<212> DNA  
<213> Homo sapien

<220>  
<221> misc\_feature  
<222> (1)...(40)  
<223> n = A,T,C or G

<400> 229  
nggnnggtcc ggncngncag gaccactcnt cttcgaaata 40

<210> 230  
<211> 208  
<212> DNA  
<213> Homo sapien

<400> 230  
agcgtggctcg cggccgaggt cctcaattgc ctccgtcaaa gcaccgatacg ctgcgtctg 60  
gaagcgcaga tctgtttaa agtcctgagc aatttctcgc accagacgct ggaagggaag 120  
tttgcgaatc agaaggttcag tggacttctg ataacgtcta atttcacgga gcgccacagt 180  
accaggacct gcccggccgg ccgctcga 208

<210> 231  
<211> 208  
<212> DNA  
<213> Homo sapien

<220>  
<221> misc\_feature  
<222> (1)...(208)  
<223> n = A,T,C or G

<400> 231  
tcgagcggcc gccccggcag gtcctggta tgnngcgctc cgtgaaattta gacgttatca 60  
gaagtccact gaacttctga ttccgttcaact tcccttccag cgtctgggtgc gagaatttgc 120  
tcaggacttt aaaacagatc tgcgttcca gagcgcagct atcgggtctt tgcaggaggc 180  
aagtgaggac ctcgccgcg accacgt 208

<210> 232  
 <211> 332  
 <212> DNA  
 <213> Homo sapien

<400> 232  
 tcgagcggcc gccccggcag gtccacatcg gcagggtcgg agccctggcc gccatactcg 60  
 aacttggaaatc catcggtcat gctctcgccg aaccagacat gcctttgtc cttgggggttc 120  
 ttggctgtatgt accagttctt ctgggccaca ctgggctgag tgggttacac gcaggctca 180  
 ccagtctcca tggtgcagaa gactttgatg gcatccaggt tgcaagcttg gttgggggtca 240  
 atccagtaact ctccacttcc caagtcagag tggcacatct tgaggtcacg gcaggtgcgg 300  
 gcggggttct tgacctcgcc cgccgaccacg ct 332

<210> 233  
 <211> 415  
 <212> DNA  
 <213> Homo sapien

<220>  
 <221> misc\_feature  
 <222> (1)...(415)  
 <223> n = A,T,C or G

<400> 233  
 gtgggntga accnnttna ntcccgcttg gtaccgagct cggatccact agtaacggcc 60  
 gccagtgtgc tggaaattcgg cttagcgtgg tcgcggccga ggtcaagaac cccgcccga 120  
 cctggcggtga cctcaagatg tgccactctg actggaaagag tggagagtac tggattgacc 180  
 ccaaccaagg ctgcaacactg gatgccatca aagtcttctg caacatggag actgggtgaga 240  
 cctgcgtgtatcccaactcag cccagtgtgg cccagaagaa ctggtacatc agcaagaacc 300  
 ccaaggacaa gaggcatgtc tgggtcgcc agagcatgac cgatggattc cagttcgagt 360  
 atggcgccca gggctccgac cctgcccgtat tggacctgcc cggcgccgcg ctcga 415

<210> 234  
 <211> 776  
 <212> DNA  
 <213> Homo sapien

<220>  
 <221> misc\_feature  
 <222> (1)...(776)  
 <223> n = A,T,C or G

<400> 234  
 agcgtggtcg cggccgaggt ctgggatgtc cctgctgtca cagtggatata ttacaggatc 60  
 acttacggag aaacaggagg aaatagccct gtccaggagt tcactgtgcc tgggagcaag 120  
 tctacagcta ccatacgccg cttaaacact ggagtttattt ataccatcac tgtgttatgt 180  
 gtcaactggcc gtggagacag ccccgcaagc agcaagccaa ttccattaa ttaccgaaca 240  
 gaaattgaca aaccatccca gatgcaagtg accgatgttc aggacaaacag cattagtgtc 300  
 aagtggctgc cttcaagttc ccctgttact ggttacagag taaccaccac tcccaaaaat 360  
 ggaccagagc caacaaaaac taaaactgca ggtccagatc aaacagaaat gactattgaa 420  
 ggcttgcagc ccacagtggaa gtatgtggtt aagtgtctat gctcagaatc caagcggaga 480  
 gaagtcaagcc tctgtttcag actgnaagta accaacattt atgcctaaa ggactggcat 540  
 tcactgtatgn ggatgccat tccatcaaaa ttgnttggaa aaacccacag gggcaagtt 600  
 ncangtcaag gnngacctac tcgagccctg aggttgaat ccttgactnt tcctnnct 660  
 gatggggaaa aaaaaccttn aaaacttgaat ggacctgccc gggcgccgt ncaaaaaccca 720

attccacccc cttggggcg ttctatgggn cccactcga ccaaacttgg ggtaan	776
<210> 235	
<211> 805	
<212> DNA	
<213> Homo sapien	
<220>	
<221> misc_feature	
<222> (1)...(805)	
<223> n = A,T,C or G	
<400> 235	
tcgagcggcc gccccggcag gtccttgcag ctctgcagtgt tcttcttac catcagggtgc	60
aggaaatagc tcatggattc catcctcagg gctcgagtag gtacccctgt acctggaaac	120
ttggccctgt gggcttccc aagcaatttt gatggaatcg gcattccat cagtgaatgc	180
cagtcctta gggcgatcaa tgttggttac tgcatgtctga accagaggct gactctctcc	240
gcttggattc tgagcataga cactaaccac atactccact gtgggctgca agccttcaat	300
agtcatattct gtttgatctg gacctgcagt tttagtttt gtttgtcctg gtccatttt	360
gggagtgggt gttactctgt aaccagtaac aggggaactt gaaggcagcc acttgacact	420
aatgctgttg tcctgaacat cggtcacttg catctggat ggtttgtcaa ttctgttgc	480
gtaattaatg gaaattggct tgctgttgc ggggcttg tccacggcca gtgacagcat	540
acacagtgtat ggtataatca actccaggtt taagccctgt atggtagctg aaactttgt	600
ccaggcacaa gtgaactcct gacagggcta ttccctnctg ttctccgtaa gtgatcctgt	660
aatatctcac tgggacagca ggangcattc caaaaacttgc ggcnngaccc cctaagccga	720
attntgcaat atncatcaca ctggcgggccc ctcgancatt cataaaagg cccaatcncc	780
cctataagggta gtntantaca attng	805
<210> 236	
<211> 262	
<212> DNA	
<213> Homo sapien	
<400> 236	
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aaaaactaag tttgagagat gaatgcaaag gaaaaaaaaa ttcccaaag tccatgtgaa	120
attgtctccc atttttttgg cttttgaggg gtttcagttt ggggtgttttgc tctgtttccg	180
ggttgggggg aaagtgggtt ggggtggagg gagccagggtt gggatggagg gagtttacag	240
gaagcagaca gggccaacgt cg	262
<210> 237	
<211> 372	
<212> DNA	
<213> Homo sapien	
<400> 237	
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aacgaaggtct tgaaccaacc tacggatgac tcgtgttttgc acccctacac agtttccat	180
tatgccgttgc gagatgagtgc ggaacgaaatgc tctgaatcag gctttaact gttgtgccag	240
tgcttagtgc ttggaaagtgg tcatttcaga tgtgattcat ctagatgggtt ccatgacaat	300
ggtgtgaact acaagattgg agagaagtgg gaccgtcagg gagaaaatgg acctgcccgg	360
gcggccgctc ga	372
<210> 238	

<211> 372  
 <212> DNA  
 <213> Homo sapien

<400> 238  
 tcgagcgccc gccccggcag gtccatttc tccctgacgg tcccaacttct ctccaatctt 60  
 gtagttcaca ccatgtcat ggcaccatct agatgaatca catctgaaat gaccacttcc 120  
 aaaggcctaag cactggcaca acagttaaa gcctgattca gacattcggtt cccactcatc 180  
 tccaaacgca taatggaaa ctgtgttaggg gtcaaagcac gagtcatecg taggttggtt 240  
 caaggccttcg ttgacagagt tgcccacggt aacaaccttct tcccaacccct tatgcctctg 300  
 ctggtcttc agtgcccca ctatgttgtt gtaggtggca cctctggta ggacctcgcc 360  
 cgcgaccacg ct 372

<210> 239  
 <211> 720  
 <212> DNA  
 <213> Homo sapien

<220>  
 <221> misc\_feature  
 <222> (1)...(720)  
 <223> n = A,T,C or G

<400> 239  
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 tatccagtga gctgaacatt ggggtgggtc cactggcgc tcaggctgtt ggggtgtgacc 180  
 tgagtgaact tcaggtcagt tgggtgcagga atagtgtta ctgcagtcgt aaccagaggc 240  
 tgactcttc cgcttggatt ctgagcatag acactaacca cataactccac tggggctgc 300  
 aaggcttcaa tagtcatttc tgtttgcattt ggacctgcag ttttagttt tggtggctct 360  
 ggtccattt tgggagtgggt ggttactctg taaccagtaa caggggaact tgaaggcagc 420  
 cacttgacac taatgtgtt gtcctgaaca tgggtcaattt gcatttggga tggtttgnca 480  
 atttctgttc ggttaattaat gaaattggc ttgctgttc cggggctgtc tccacggcca 540  
 gtgacagcat acacagngat gnatnatca actccaagtt taaggccctg atggtaactt 600  
 taaaacttgc cccagccagn gaacttccgg acagggtatt tcttcgtt ttccgaaagn 660  
 ganccctggaa tnntctccctt ggancagaag ganccntccaa aacttgggcc ggaaccctt 720

<210> 240  
 <211> 691  
 <212> DNA  
 <213> Homo sapien

<220>  
 <221> misc\_feature  
 <222> (1)...(691)  
 <223> n = A,T,C or G

<400> 240  
 agcgtggtcg cggccgaggt cctgtcagag tggcactggt agaagttcca ggaaccctga 60  
 actgttaagggt ttcttcata gtcacacag gatgacatga aatgtatgtac tcagaagtgt 120  
 cctggaaatgg ggcccatgag atgggtgtct gagagagagc ttcttgcctt acattcggcg 180  
 ggtatggtct tggcttatgc cttatggggg tggccgttggt gggcggtgtg gtccgcctaa 240  
 aaccatgttc ctcaaagatc atttgttgcc caacactggg ttgtcgttca gaaatgtccag 300  
 gaagctgaat accatttcca gtgtcataacc cagggtgggt gacgaaagggt gtctttgaa 360  
 ctgtggaaagg aacatccaag atctctggtc catgaagatt ggggtgtgga agggttacca 420

gttgggaaag ctcgtctgtc ttttccttc caatcagggg ctcgtcttc tgattattct	480
tcaggcaat gacataaatt gtatattcg ttcccggttc caggccagta atagtagcct	540
cttgtacac caggcggggc ccanggacca cttctctgg angagaccca gettctcata	600
cttgatgatg taaccggta atcctgcacg tggcgctgn catgatacca ncaaggaatt	660
gggtgngng gacctgcccgc gcggccctcn a	691
<210> 241	
<211> 808	
<212> DNA	
<213> Homo sapien	
<220>	
<221> misc_feature	
<222> (1)...(808)	
<223> n = A,T,C or G	
<400> 241	
agcgtggtcg cggccgaggt ctgggatgct cctgtgtca cagttagata ttacaggatc	60
acttacggag aaacaggagg aaatagccct gtccaggagt tcactgtgcc tggagcaag	120
tctacagcta ccatcagcg ccttaaacct ggagttgatt ataccatcac tgtgtatgt	180
gtcaactggcc gtggagacag ccccgcaagc agcaaggccaa tttccattaa ttaccgaaca	240
gaaattgaca aaccatccca gatgcaagtg accgatgttc aggacaacag cattagtgtc	300
aagtggctgc cttcaagttc ccctgttact gttacagag taaccaccac tcccaaaaat	360
ggaccaggac caacaaaaac taaaactgca ggtccagatc aaacagaaat gactattgaa	420
ggcttgcage ccacagtgga gtatgtggtt agtgtctatg ctcagaatcc aagcggagag	480
agtcagccctc tggttcagac tgcagtaacc actattctg caccaactga cctgaagttc	540
actcaggtca caccacaaag cctgagccgc cagtggacac caccaatgt tcactcactg	600
gatatcgagt gccccgtgacc cccaaaggaga agacccggac ccatgaaaga aatcaacctt	660
gctcctgaca gctcatccgn ggggttatca ggacttatgg ggactgtccc cggcngccg	720
ntcgaaancg aattntgaaa tttccttcnc actgggnggc gnttcgagct tnctntana	780
ngggcccaatt cncctntagn gggtcgttn	808
<210> 242	
<211> 26	
<212> DNA	
<213> Homo sapien	
<220>	
<221> misc_feature	
<222> (1)...(26)	
<223> n = A,T,C or G	
<400> 242	
agcgtggtcg cggccgaggt cnagga	26
<210> 243	
<211> 697	
<212> DNA	
<213> Homo sapien	
<220>	
<221> misc_feature	
<222> (1)...(697)	
<223> n = A,T,C or G	

&lt;400&gt; 243

tcgagcggcc	gccccggcag	gtccaccaca	cccaattcct	tgctggtata	atggcagccg	60
ccacgtgcc	ggattaccgg	ctacatcatc	aagtatgaga	agcctgggc	teetcccaga	120
gaagtggcc	ctcgccccg	ccctgggtc	acagaggcta	cttactgg	cctggAACCG	180
gaaaccgaat	atacaattta	tgtcattgcc	ctgaagaata	atcagaagag	cgagccccctg	240
attggaagga	aaaagacaga	cgagcttccc	caactggtaa	cccttccaca	ccccaaatctt	300
catggaccag	agatcttga	tgttccttcc	acagttcaaa	agaccccttt	cgtcacccac	360
cctgggtatg	acactggaa	tgttattca	cttcctggca	cttctggta	gcaacccagt	420
gttggggcaac	aatatgtctt	tgaggaacat	ggttttaggc	ggaccacacc	gcccacaacg	480
ggcaccggca	taagnatag	gccaagacca	taccccccgg	aattagggac	aagaagctct	540
ntctcaacaa	ccatctcatg	ggccccattc	caggacactt	ctgagtagat	catttcatgt	600
catcctggtg	ggcacttgc	gaanaaccct	tacagtca	ggttcctgga	acttctacca	660
gngccacttc	tgacagganc	ttggcgnga	ccaccct			697

&lt;210&gt; 244

&lt;211&gt; 373

&lt;212&gt; DNA

&lt;213&gt; Homo sapien

&lt;400&gt; 244

agcgtggtcg	cggccgaggt	ccatttctc	cctgacggtc	ccacccctct	ccaatcttgt	60
agttcacacc	attgtcatgg	caccatctag	atgaataca	tctgaaatga	ccacttccaa	120
agcctaagca	ctggcacaac	agtttaaagc	ctgattcaga	cattcggtcc	cactcatctc	180
caacggcata	atggaaact	gtgttaggggt	caaagcacga	gtcatccgta	ggttggttca	240
agccttcgtt	gacagagttg	cccacggtaa	caaccttcc	ccgaacctta	tgcctctgt	300
ggtcttcag	tgcctccact	atgatgttgt	aggtggcacc	tctggtgagg	acctgcccgg	360
cgggcccgct	cga					373

&lt;210&gt; 245

&lt;211&gt; 307

&lt;212&gt; DNA

&lt;213&gt; Homo sapien

&lt;400&gt; 245

agcgtggtcg	cggccgaggt	gtgccccaga	ccaggaattc	ggcttcgacg	ttggccctgt	60
ctgcttcctg	taaactccct	ccatcccaac	ctggctccct	cccacccaa	caactttccc	120
cccaacccgg	aaacagacaa	gcaacccaaa	ctgaaccccc	tcaaaagcca	aaaaaatggg	180
agacaatttc	acatggactt	tggaaaatat	tttttccctt	tgatttcata	tctcaaactt	240
agtttttatac	tttgaccaac	cgaacatgac	caaaaaccaa	aagtgacctg	cccgccggc	300
cgctcga						307

&lt;210&gt; 246

&lt;211&gt; 372

&lt;212&gt; DNA

&lt;213&gt; Homo sapien

&lt;400&gt; 246

tcgagcggcc	gccccggcag	gtcctcacca	gaggtgccac	ctacaacatc	atagtggagg	60
caactgaaaga	ccagcagagg	cataagggtc	gggaagaggt	tgttaccgtg	ggcaactctg	120
tcaacgaagg	cttgaaccaa	cctacggatg	actcggtctt	tgacccctac	acagtttccc	180
attatgccgt	tggagatgag	tgggaacgaa	tgtctgaatc	aggctttaaa	ctgttgtgcc	240
agtgccttgg	ctttggaaat	ggtcattca	gatgtgattc	atctagatgg	tgccatgaca	300
atgggtgtaa	ctacaagatt	ggagagaagt	gggaccgtca	gggagaaaat	ggaccccgcc	360
cgcgaccacg	ct					372

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<210> 247
<211> 348
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(348)
<223> n = A,T,C or G

<400> 247
tcgagcggcc gccccggcaag gtaccgggt ggtcagcgag gagccattca cactgaactt      60
caccatcaac aacctgcgggt atgaggagaa catgcagcac cctggctcca ggaagttcaa      120
caccacggag agggcttc agggcctgc caggtccctg ttcaagagca ccagtgttgg      180
ccctctgtac tctggctgca gactgacttt gctcagacct gagaaacatg gggcagccac      240
tggagtggac gccatctgca ccctccgcct tgatcccact ggtnctggac tggacanana      300
gcggctatac ttggagactg anccnaacctt ttggcggngc cnccnctt      348

<210> 248
<211> 304
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(304)
<223> n = A,T,C or G

<400> 248
gaggactggc tcagctccca gtatagccgc tctctgtcca gtcaggacc agtgggatca      60
aggcggaggg tgcaaatggc gtccactcca gtggctgccc catgtttctc aagtctgagc      120
aaagncaagtc tgcaagccaga gtacagaggg ccaacactgg tgctcttcaa cagggacctg      180
agcaggccct gaaggaccct ctccgtggtg ttgaacttcc tggagccagg gtgctgcatg      240
ttctctcat accgcagggtt gttatggtg aagttcagtg tgaatggctc ctcgctgacc      300
accc      304

<210> 249
<211> 400
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(400)
<223> n = A,T,C or G

<400> 249
agcgtggtcg cggccgaggt ccaccacacc caattccttgc tggttatcat ggcagccgcc      60
acgtgccagg attacccggct acatcatcaa gtatgagaag cctgggtctc cttccagaga      120
agtggccct cggcccccgc ctgggtcact agaggctact attactggcc tggaaaccggg      180
aaccgaatat acaatttatg tcattccctt gaagaataat cagaagagcg agccctgtat      240
tggaaaggaaa aagacagacg agcttccca actggtaacc cttccacacc ccaatcttca      300
tggaccanan ancttggatn gtccttcac nggttnaaaaa aacccttttgc gccccccac      360
cttggggatt aaccttggga aanggggatt tnaccnttcc      400

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<210> 250
<211> 400
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(400)
<223> n = A,T,C or G

<400> 250
tcgagcggcc gccccggcag gtcctgtca agtggcactg gtagaaggttc caggaaccct      60
gaactgttaag ggttttcat cagtgcac aggtgcacat gaaatgtatgt actcagaagt      120
gtccttggaaat gggggccatg agatggttgt ctgagagaga gcttcttgc ctacattcg      180
cggttatgtt cttggccat gctttatggg ggtggccgtt gtggccgtq tggccgcct      240
aaaaccatgt tcctcaaaga tcatttggtt cccaacactg gtttgctgac cagaagtgcc      300
aggaagctga ataccatttc cagtgtata cccagggnng gtgaccaaag gggtcnttt      360
ngacctggng aaaggaacca tcacaaanc ctgncccattg      400

<210> 251
<211> 514
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(514)
<223> n = A,T,C or G

<400> 251
agcgtggncg cggccggagg ctgaggatgt aaactcttcc caggggaagg ctgaagtgc      60
gaccatgggt ctactgggtc ctctctgatc agatatgtga ctgatngaa ctgaagtagg      120
tactgttagat ggtgaagtct ggggtccctt aaatgtctca tctccagagc cttccatcat      180
taccgtttct tctttctca tggatgaga cactgtttag tattctctaa agtcaccact      240
gaaatcttcc tcacaaaggaa aacctgttga aaagccccctt atttctgecc cataatttgg      300
ttctcttaat cnctctgaaa tcactatttc cctggaangt ttggaaaaa nnggcnacc      360
tgncantgga aantggatan aaagatccca ccattttacc caacnacgag aaagtggaa      420
nggtaccgaa aagcttcaag taanaaaaag gagggaaagta aaggtcaagt gggcaccagt      480
ttcaacaaaa acctttccca aactatanaa cccca      514

<210> 252
<211> 501
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(501)
<223> n = A,T,C or G

<400> 252
aagcggccgc ccgggcaggn ncagnagtgc ctccggact gggntcaccc ccaggtctgc      60
ggcagttgtc acagcggccag ccccgcgtgc ctccaaagca tgtgcaggag caaatggcac      120
cgagatatttc cttctgcccac tggatcttca cgtggatgt ctcccatca tcgtaacacg      180
ttgcctcatg agggtcacac ttgaatttgc ctttccctt cccaaagacat gtgcagctca      240

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tttggctggc tctatagttt gggaaagt tggtgaaact gtgccactga cctttacttc	300
ctccttctct actggagctt tccgtacctt ccacttctgc tgntggaaaa aagggnngaa	360
cntcttatca atttcattgg acagtanccc nctttctncc caaaaacatnc aaggaaat	420
attgattncc agagcggatt aaggaacaac ccnaattatg gggccagaa ataaaggggg	480
cttttccaca ggtntttcc t	501
<210> 253	
<211> 226	
<212> DNA	
<213> Homo sapien	
<400> 253	
tcgagcggcc gccccggcag gtcgtcaggc tattgtaaat gttctgagca catatgagat	60
aacctgggcc aagctatgtat gttcgatacg tttaggttat taaatgcact tttgactgcc	120
atctcagtgg atgacagcct tctcaactgac agcagagatc ttccctcaactg tgccagtggg	180
caggagaaaag agcatgctgc gactggaccc cggccgcgac cacgt	226
<210> 254	
<211> 226	
<212> DNA	
<213> Homo sapien	
<400> 254	
agcgtggtcg cggcccgaggc ccagtcgcag catgtcttt ctccctgccccca ctggcacagt	60
gaggaagatc tctgtgtca gtgagaaggc tgtcatccac tgagatggca gtcaaaaatgt	120
catttaataac acctaaacgta tcgaacatca tagttggcc caggttatctt catatgtgt	180
cagaacactt acaatacgctt gcagacactgc cccggccggcc qctcga	226
<210> 255	
<211> 427	
<212> DNA	
<213> Homo sapien	
<220>	
<221> misc_feature	
<222> (1)...(427)	
<223> n = A,T,C or G	
<400> 255	
cgagcggccg cccggccagg tccagactcc aatccagaga accaccaagc cagatgtcag	60
aagctacacc atcacagggtt tacaaccagg cactgactac aagatctacc tgcacaccc	120
aatgtgacaat gctcgagct cccctgtggt catcgacgccc tccactgcca ttgtatgcacc	180
atccaaacctg cggttccctgg ccaccacacc caattccctt ctgttatcat ggcagccgccc	240
acgtggccagg attaccggct acatcatcaa gtatgagaag cctgggtctc ctcccagaga	300
agtggccctt cggcccccgc ctggtgncac agaagctactt attactggcc tggaaaccggg	360
aaccgaatat acaattttatg tcattgcctt gaagaataat canaagagcg agcccctgtat	420
tggaaagg	427
<210> 256	
<211> 535	
<212> DNA	
<213> Homo sapien	
<220>	
<221> misc_feature	

<222> (1)...(535)  
 <223> n = A,T,C or G

<400> 256

agcgtggtcg cggccgaggt cctgtcagag tggcaactggt agaagttcca ggaaccctga	60
actgtaaagg ttcttcatca gtgcacacag gatgacatga aatgtatgtac tcagaagtgt	120
cctggaatgg ggcccatgag atggttgtct gagagagagc ttcttgctt gtcttttcc	180
ttccaatcag gggctcgctc ttctgattat tcttcaggc aatgacataa attgtatatt	240
cggttcccggt ttccaggcca gtaatagtag cctctgtgac accaggcg ggccgaggga	300
ccacttctct gggaggagac ccaggctctcataacttgcat gatgtanccg gtaatcctgg	360
caccgtggcg gctgccatga taccagcaag gaattgggtg tggtgccaa gaaacgcagg	420
ttggatgtg catcaatggc agtggaggcg tcgatnacca caggggagct ccgancatttgc	480
tcattcaagg tggacaggtttaa atcaggtgcc tggtttgc acctg	535

<210> 257

<211> 544

<212> DNA

<213> Homo sapien

<220>

<221> misc\_feature

<222> (1)...(544)

<223> n = A,T,C or G

<400> 257

tcgagcggcc gccccggcag gtttcgtgac cgtgacacctcg aggtggacac caccctcaag	60
agcctgagcc agcagatcga gaacatccgg agcccagagg gcagccgcaa gaaccccccggc	120
cgcacctgccc gtgacacctaa gatgtgcccac tctgacttggaa agagtggaga gtactggatt	180
gaccccaacc aaggctgcaaa cctggatgccc atcaaagtct tctgcaacat ggagactgg	240
gagacctgcg tgtacccac tcagccccgt gtggcccaaga agaactggta catcagcaag	300
aaccccaagg acaagaagca tgctgggtc ggccaaagca tgaccgatgg attccagttc	360
gagtatggcg gccagggtctc cgaccctgccc gatgtggacc tcggccgcga ccacgctaag	420
cccgaaattcc agcacactgg cggccgttac tagtgggatc cgagcttcgg taccaagctt	480
ggcgtaatca tgggnatcatag ctgtttctcg ngtaaaatg gtattccgc tcacaatttc	540
ccac	544

<210> 258

<211> 418

<212> DNA

<213> Homo sapien

<400> 258

agcgtggtcg cggccgaggt ccacatcgcc agggtcggag ccctggccgc cataactcgaa	60
ctggaaatcca tcggtcatgc tctcgccgaa ccagacatgc ctcttgctt tgggggttctt	120
gctgtatgtac cagttttctt gggccacact gggctgagtg gggacacgc aggtctcacc	180
agtctccatg ttgcagaaga ctttgcgttgc atccagggttgc cagccttgc tgggggtcaat	240
ccagtaactcttcc actcttcc agtcagatgt gcacatcttgc aggtcacggc aggtgcgggg	300
ggggttcttg cggctgcctt ctgggtctcg gatgttctcg atctgttgc tcaagctt	360
gaagggttgtt gtccacatcg aggtcacggc cacgaaacct gccccggcgg ccgctcgaa	418

<210> 259

<211> 377

<212> DNA

<213> Homo sapien

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<220>
<221> misc_feature
<222> (1)...(377)
<223> n = A,T,C or G

<400> 259
agcgtggtcg cggccgaggt caagaacccc gcccgcacct gccgtgacct caagatgtgc      60
cactctgact ggaagagtgg agagtaactgg attgaccctca accaaggctg caacctggat      120
gccccatcaaaatctttctgaa catggagact ggtgagacct gcgtgtaccc cactcagccc      180
agtgtggccc agaagaactg gtacatcagc aagaacccc aggacaagag gcatgtctgg      240
ttccggcgaga gcatgaccga tggattccag ttcgagatgt gccccccaggg ctccgaccct      300
gccccatgtgg acctgcccgn gccccnccgc tcgaaaagcc cnaatttcca gncacacttg      360
gccccccgtt actactg      377

<210> 260
<211> 332
<212> DNA
<213> Homo sapien

<400> 260
tcgagcggcc gccccggcag gtcccacatcg gcagggtcg agccctggcc gccatactcg      60
aactggaaatc catcggtcat gctctcgccg aaccagacat gcctttgtc cttgggggttc      120
ttgctgtatgt accaggatctt ctggggccaca ctgggctgag tgggtacac gcaggctcga      180
ccagttccca tggcgagaa gactttgtatg gcatccaggt tgccgcctt gttgggggtca      240
atccagtaat ctccacttcc ccaatcagag tggcacatct tgaggtaacg gcagggtcgg      300
gcggggttct tgacctcgcc cgccgaccacg ct      332

<210> 261
<211> 94
<212> DNA
<213> Homo sapien

<400> 261
cgagcggccg cccgggcagg tccccccct tttttttttt tttttttttt tttttttttt      60
tttttttttt tttttttttt tttttttttt tttt      94

<210> 262
<211> 650
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(650)
<223> n = A,T,C or G

<400> 262
agcgtggtcg cggccgaggt ctggcattcc ttccgacttct ctccagccga gttcccaaga      60
acatcaataata tcactgaaaa aatagcattg catacatgaa tcaggccagt ggaaatgtaa      120
agaaggccct gaagctgtatg gggtaaatatg aaggtgaatt caaggctgaa ggaaatagca      180
aatttcaccta cacagttctg gaggatggtt gcacgaaaca cactggggaa tggagcaaaa      240
cagtcttga atatcgaaca cgcaaggctg tgagactacc tattgttagat attgcaccct      300
atgacatgg tggctctgat caagaatttg gtgtggacgt tggccctgtt tgctttttat      360
aaacccaaact ctatctgaaa tcccaacaaaa aaaaatttaa ctccatatgt gntcctcttg      420
ttctaatctt ggcaaccagt gcaagtgacc gacaaaattc cagttatttia tttccaaaat      480

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gtttggaaac agtataat	t gacaaagaaa aaaggatact tctttttt tggctggtcc	540
accaaataca attcaaaagg ctttttgtt ttatttttt anccaattcc aatttcaaaa		600
tgtctcaatg gngcttataa taaaataaac tttcaccctt ntttntgat		650

&lt;210&gt; 263

&lt;211&gt; 573

&lt;212&gt; DNA

&lt;213&gt; Homo sapien

&lt;220&gt;

&lt;221&gt; misc\_feature

&lt;222&gt; (1)...(573)

&lt;223&gt; n = A,T,C or G

&lt;400&gt; 263

agcggtggtcg cggccggagg	ctggatgct cctgctgtca cagttagata ttacaggatc	60
acttacggag aaacaggagg	aatagccct gtccaggagt tcactgtgcc tgggagcaag	120
tctacagcta ccatcagcgg	ccttaaacct ggagttgatt ataccatcac tgtgtatgct	180
gtcaactggcc gtggagacag	ccccgcagaagc agcaagccaa ttccattaa ttaccgaaca	240
gaaattgaca aaccatccca	gatgcaagtg accgatgtt aggacaacag cattagtgtc	300
aagtggctgc cttcaagttc	ccctgttact ggttacagaa gtaaccacca ctcccaaaaa	360
tggaccagga ccaacaaaaa	ctaaaactgc aggtccagat caaacagaaa atggactatt	420
gaaggcttgc agccccacagt	ggaaagtatgt ggntaggnct atatgtcag aatcccaagc	480
cggagaaagt cagccttctg	gttagactg cagtaaccaa cattgatcgc cctaaaggac	540
tggncattca cttggatggt	ggatgtccaa ttc	573

&lt;210&gt; 264

&lt;211&gt; 550

&lt;212&gt; DNA

&lt;213&gt; Homo sapien

&lt;220&gt;

&lt;221&gt; misc\_feature

&lt;222&gt; (1)...(550)

&lt;223&gt; n = A,T,C or G

&lt;400&gt; 264

tcgagcggcc gccccggcag	gtccttgcag ctctgcagn g tctttttcac catcagggtgc	60
agggaaatagc tcatggattc	cattcctcagg gtcgagtag gtcaccctgt acctggaaac	120
ttggccctgt gggcttcccc	aagcaattttt gatggaatcg acatccacat cagngaatgc	180
cagtccctta gggcgatcaa	tgttggttac tgcatgtcga accagaggct gactctctcc	240
gcttggattc tgagcataga	cactaaccac atactccact gtgggtgcg agccttcaat	300
agtcaatttc gtttgcattc	gacctgcagt tttttagttt tgggtgttct gncccathtt	360
tggaaagtgg ggggttactc	tgttaccgt aacagggaa cttgaaggca gccacttgac	420
actaatgtcg ttgtccctgaa	cattcgtcact ttgcattctgg ggtatgtttt gacaattttct	480
ggttcgccaa attaatggaa	attggcttgc tgcttggcgg ggctgnctcc acggggccagt	540
gacagcatac		550

&lt;210&gt; 265

&lt;211&gt; 596

&lt;212&gt; DNA

&lt;213&gt; Homo sapien

&lt;220&gt;

&lt;221&gt; misc\_feature

<222> (1)...(596)  
<223> n = A, T, C or G

<400> 265

tgcggccggcc	gccccgggcag	gtccttgcag	ctctcgactg	tcttcac	catcagggtc	60
agggaaatgc	tcatggattc	catecctcagg	gctcgagtag	gtcacccctgt	acctggaaac	120
ttggccctgt	gggcttcccc	aagcaatttt	gatggaatcg	acatccacat	cagtgaatgc	180
cagtccttta	gggcgatcaa	tgttggttac	tgcagttctga	accagaggct	gactctctcc	240
gcttggattc	ttagccataga	cactaaccac	atactccact	gtgggctgc	agccttcaat	300
agtcatcttct	gtttgatctg	gacctgcagt	tttaagttt	tgttggncct	gnnccatttt	360
tggggaaagg	gtgggtactc	ttgttaaccag	taacagggg	acttgaagca	gccacttgc	420
actaatgcgt	gtggcctgaa	catecggtac	ttgcatctgg	gatggtttgg	tcaatttctg	480
ttccggtaatt	aatggaaat	tggcttactg	gcttgcgggg	gctgtctcca	cggncagtga	540
caagcataca	cagggatgg	gtataatcaa	ctccaggtt	aaqgccc	ntcq atqgta	596

<210> 266

<211> 506

<212> DNA

<213> Homo sapien

<220>

<221> misc\_feature

<222> (1)...(506)

<223> n = A, T, C or G

<400> 266

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agcgctggtcg cggccgagg ctggatgt cctgtgtca cagttagata ttacaggatc .60
acttacggag aaacaggagg aaatagccct gtccaggagt tcactgtgcc tgggagcaag 120
tctacagcta ccatcagcgg ccttaaacct ggagttgatt ataccatcac tgtgtatgtc 180
gtcaactggcc gtggagacag ccccgcaagc agtaagccaa ttccattaa ttaccgaaca 240
gaaattgaca aaccatcccc gatgcaagtgc accgatgttc aggacaacag cattagtgtc 300
aagtggctgc ctcaagttc ccctgttact ggttacagag taaccaccac tccaaaaaat 360
gggaccagga ccaacaaaaaa actaaaaactg canggtccag atcaaacaga aatgactatt 420
gaaggcttgc agccccacagt ggagttatgtc ggtagtgc tatgtctcga atnccaagcg 480
gagagagtcg gcctctgggtt cagact 506

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<210> 267

<211> 548

<212> DNA

<213> Homo sapien

<220>

<221> misc\_feature

<222> (1) . . . (548)

<223> n = A, T, C or G

<400> 267

tgcggccggcc	gccccggggcag	gtcagcgctc	tcaggacgtc	accaccatgg	cctgggctct	60
gtcttcttc	acccctctca	ctcaggc	agggtcctgg	gcccagtctg	ccctgactca	120
gcctccctcc	gcgtccgggt	ctcctggaca	gtcagtacc	atctcctgca	ctggaaccag	180
cagtgcacgtt	ggtgcttatg	aatttgtctc	ctggta	caacacccag	gcaaggcccc	240
caaactcatg	attttgtgagg	tcactaagcg	gccctcaggg	gtccctgatc	gcttctctgg	300
ctccaaggtct	ggcaacacgg	cctccctgac	cgtctctggg	ctccangctg	aggatgangc	360
tgattattac	tggaagctca	tatgcaggca	acaacaattg	ggtgttcggc	ggaagggacc	420
aagctgacccg	tnctaagg	tcggccccc	tcggta	ctcgtca	tgttcccacc	480

ctcctctgaa gaagcttca agccaacaan gncacactgg gtgtgtctca taagtggact	540
ttctaccc	548
<210> 268	
<211> 584	
<212> DNA	
<213> Homo sapien	
<220>	
<221> misc_feature	
<222> (1)...(584)	
<223> n = A,T,C or G	
<400> 268	
agcgtggtcg cggccgaggt ctgttagcttc tggggactt ccactgtca ggcgtcaggc	60
tcaaggtagct gctgcccgcg tacttgttg tgctttntt ggagggtgtg gtggtctcca	120
ctcccgcctt gacggggctg ctatctgcct tccaggccac tgtcacggct cccgggtaga	180
agtacttat gagacacacc agtgtggct tgggtgttg aagctctca gaggagggtg	240
ggaacagagt gaccgaggggg gcagccttgg gctgacctag gacgggtcagg ttggteccctc	300
cggccgaacac ccaattgttg ttgcctgcat atgagctgca gtaataatca gcctcatct	360
cagcctggag cccagagacn gtcaaggggag gcccgtgtt gccaagactt ggaagccaga	420
naagcgatca gggacccctg agggcccgtt tacngacctc aaaaaatcat gaatttgggg	480
ggccttgcg tgggngttgg ttggtnacca gnaaaacaaa atttcataaa gcaccaacgt	540
cactgcttgtt ttccagtgca ngaanatggt gaactgaant gtcc	584
<210> 269	
<211> 368	
<212> DNA	
<213> Homo sapien	
<220>	
<221> misc_feature	
<222> (1)...(368)	
<223> n = A,T,C or G	
<400> 269	
agcgtggtcg cggccgaggt ccagcatca gggcccccc ttggccggctc tggtcatcgc	60
ctttttttt gtggcctgaa acatgtcat caatttcgcag tagcagaact gccgtctcca	120
ctgtgttataaataatgtc agttcacag ccaatggctc ccataatgccc agttccttca	180
tgtccaccaa agtacccgtc tcaccattta caccccaagggt ctcacagttc tcctgggtgt	240
gtttggcccg aaggaggta agtanacggg tggtgctgtt cccacagttc tggatcagg	300
tacgaggaat gacctctagg gcctgggcna caagccctgt atggacctgc ccgggcgggc	360
ccgcgtcgaa	368
<210> 270	
<211> 368	
<212> DNA	
<213> Homo sapien	
<220>	
<221> misc_feature	
<222> (1)...(368)	
<223> n = A,T,C or G	
<400> 270	

tcgagcggcc gccccggcag gtccatacag ggctgtgcc caggccctag aggncattcc	60
ttgtacccctg atccagaact gtgggaccag caccatccgt ctacttacct cccttcggc	120
caagcacacc caggagaact gtgagacctg ggggttaaat ggnngagacgg gtacttttgt	180
ggacatgaag gaactggca tatgggagcc attggctng aagctgcana cttataagac	240
agcagtggag acggcagttc tgctactcg aattgtatgac atcgtttcag gccacaaaaaa	300
gaaaggcgat gaccanagcc gcacaggcgg ggcttcctga tgctggaccc cgccggccga	360
ccacgctt	368
<210> 271	
<211> 424	
<212> DNA	
<213> Homo sapien	
<220>	
<221> misc_feature	
<222> (1)...(424)	
<223> n = A,T,C or G	
<400> 271	
agcggtggtc cggccgaggt ccactagagg tctgtgtgcc attggccagg cagagtctct	60
gcgttacaaa ctccttaggag ggcttgcgtg gcggaggccc tgctatggtg tgctgcgggt	120
catcatggag agtggggcca aaggctgcga ggttgggttg tctggaaac tccgaggaca	180
gagggtctaaa tccatgaagt ttgtggatgg cctgatgatc cacagcggag accctgttaa	240
ctactacgtt gacactgctg tgcccacgt gttgctcana cagggtgtgc tgggcatcaa	300
ggtgaagatc atgctgcctt gggaccanc tggcaaaaat ggccttaaaa aacccttgc	360
cntagaccacg tgaaccattt gtgngaaccc caagatgaan atacttgcaccaccaccc	420
attc	424
<210> 272	
<211> 541	
<212> DNA	
<213> Homo sapien	
<220>	
<221> misc_feature	
<222> (1)...(541)	
<223> n = A,T,C or G	
<400> 272	
tcgagcggcc gccccggcag gtctgccaag gagaccctgt tatgtgtgg ggactggctg	60
gggcatggca ggcggctctg gcttcccacc cttctgtct gagatggggg tgggtggcag	120
tatctcatct ttgggttcca caatgctcac gtggtcaggc aggggcttct tagggccaat	180
cttaccagtt gggcccagg gcagcatgat ctteacccttg atgcccagca caccctgtct	240
gagcaacacg tggcgacacg cagtgcaac gtagtagtta acagggtctc cgctgtggat	300
catcaggcca tccacaaact tcatggattt agccctctgt cctcgagtt tcccaaaaca	360
ccacaaccc tccacaaact tcatggattt agccctctgt cctcgagtt tcccaaaaca	420
ccacaaccc tccacaaact tcatggattt agccctctgt cctcgagtt tcccaaaaca	480
ancaaggccc ttcccgacacg gnaaggccctt cctaaggagt tttgtaaacg caaaaaactct	540
ttgcctgggg caaatggca cacagacctn tantnggacc ttggncgcg aaccaccgct	541
t	
<210> 273	
<211> 579	
<212> DNA	
<213> Homo sapien	

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<220>
<221> misc_feature
<222> (1)...(579)
<223> n = A,T,C or G

<400> 273
agcgtggtcg cggccgaggt ctggccctcc tggcaaggct ggtgaagatg gtcaccctgg      60
aaaacccgga cgacctggtg agagaggagt tttggacca cagggtgctc gtggtttccc      120
tggactcct ggacttcctg gttcaaagg cattagggaa cacaatggtc tggatggatt      180
gaagggacag cccgtgtc tcgggtgaa gggtaacct ggnccccctg gtgaaaatgg      240
aactccaggt caaacaggag cccngggct tcctggngag agaggacgtg ttggtgc(ccc      300
tggcccanac ctgcccggc ggcgcctna aaagccaaa tccagnacac tggcggccgn      360
tactantgga atccgaactt cggtaaaaa gcttggccgt aatcatggcc atagcttgg      420
ccctggggng gaaattggta ttccgctncc aattccacac aacataccga acccgaaag      480
cattaaatgt taaaagccct gggggggcct aatgangtg agctaactc ncatttaatt      540
ggcgttgcgc ttcactgccc cgctttcca gtccgggna      579

<210> 274
<211> 330
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(330)
<223> n = A,T,C or G

<400> 274
tcgagcggcc gccccggcag gtctggccca ggggcaccaa cacgtcctct ctcaccagga      60
agcccacggg ctctgtttt acctggagtt ccattttcac caggggcacc agttcaccc      120
ttcacaccag gagcaccggg ctgtcccttc aatccatcca gaccattgtg ncccctaatg      180
ccttgaagc caggaagtcc aggagttcca gggaaaccac gaggccctg tggtccaaca      240
actcctctct caccagggtcg tccgggtttt ccagggtgac catttcacc agccttgcca      300
ggagggccag acctcgccg cgaccacgct      330

<210> 275
<211> 97
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(97)
<223> n = A,T,C or G

<400> 275
ancgtggtcg cggccgaggt ctcaccaga ggtgnacact acaacatcat agtggaggca      60
ctgaaagacc ancagaggca taaggttcgg gaagagg      97

<210> 276
<211> 610
<212> DNA
<213> Homo sapien

<220>

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<221> misc_feature
<222> (1)...(610)
<223> n = A,T,C or G

<400> 276
tcgagcgccc gccccggcag gtccatttc tccctgacgg tcccacttct ctccaatctt      60
gtagttcaca ccattgtcat ggcaccatct agatgaatea catctgaaat gaccacttcc      120
aaaggcctaag cactggcaca acagttaaa gcctgattca gacattcggt cccactcatc      180
tccaaacggca taatggaaa ctgtgttaggg gtcaaagcac gagtcatecg taggttgggt      240
caaggcttcg ttgacagagt tgtccacggt aacaacctct tcccgaacct tatgectctg      300
ctggtcttc agtgcccca ctatgatgtt gtaggtggca cctctggta ggacactengn      360
ccngaacaac gcttaagccc gnattctgca gaataatccc atcacacttg gggggcgcctt      420
cgancatgca tcntaaaagg ggcccccaatt tcccccttat aagngaancc gtattncca      480
atttcactgg ncccgcgnt tttacaaaacg ncggtaact gggaaaaaac cctggcgggtt      540
acccaacttt aatgcgcntt ggcagcacaa tcccccttt tcgnccancn tgggcgtaaa      600
taaccgaaaaa                                         610

<210> 277
<211> 38
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(38)
<223> n = A,T,C or G

<400> 277
ancgnggtcg cggccgangt ntttttctt nttttttt                                         38

<210> 278
<211> 443
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(443)
<223> n = A,T,C or G

<400> 278
acgctgggtcg cggccgaggt ctgaggttac atgcgtggtg gtggacgtga gccacgaaga      60
ccctgaggtc aagtcaact ggtacgtgga cggcgtggag gtgcataatg ccaagacaaa      120
gcccggggag gagcagtaca acagcacgta cccgggnngtc agcgtctca cccgtcctgca      180
ccagaattgg ttgaatggca aggagtacaa gngcaagggtt tccaaacaaag ccntcccaagc      240
ccccntcgaa aaaaccattt ccaaagccaa agggcagccc cgagaaccac aggtgtacac      300
cctgccccca tccccggagg aaaagancaa naaccnngtt cagccttaac ttgcttggtc      360
naangcttt tatcccaacg nacttcccc ntggaantgg gaaaaaccaa tgggccaanc      420
cgaaaaacaa ttacaanaac ccc                                         443

<210> 279
<211> 348
<212> DNA
<213> Homo sapien

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<220>
<221> misc_feature
<222> (1)...(348)
<223> n = A,T,C or G

<400> 279
tcgagcgccc gccccggcag gtgtcgaggcc ccaagcacggg aggccgtggtc ttgttagttgt      60
tctccggctg cccatttgc tcccaactcca cggcgatgtc gctgggatag aaggccttga      120
ccaggcgaggc caggctgacc tggttcttg tcatctcctc ccgggatggg ggcagggtga      180
acacacctgggg ttctccgggc ttgccttctt gttttgaana tggtttctc gatgggggct      240
ggaagggctt tggtnaaac ctgcacttg actccttgcc attcacccag ncctggngca      300
ggacggngag gacnctnacc acacggaaacc gggctgggtgg actgctcc      348

<210> 280
<211> 149
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(149)
<223> n = A,T,C or G

<400> 280
agcgtggtcg cggacgangt cctgtcagag tggnaactggt agaagtccca ngaaccctga      60
actgtaaaggg ttcttcatca gtgccaacag gatgacatga aatgatgtac tcagaagngn      120
cctggaatgg ggcccatgan atggttgccc      149

<210> 281
<211> 404
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(404)
<223> n = A,T,C or G

<400> 281
tcgagcgccc gccccggcag gtccaccacca cccaaattccct tgctggtatac atggcagccg      60
ccacgtgcca ggattaccgg ctacatcatc aagtatgaga agcctgggtc tcctcccaaga      120
gaagtgggtcc ctcggccccgg ccctgggtgc acagaggcta ctattactgg cctggaaaccg      180
ggaaccgaat atacaattta tgcatttgcc ctgaagaata atcagaagag cgagccccctg      240
attggaagga aaaagacaga cgagcttccc caactggtaa cccttccaca ccccaatctt      300
catggaccag agatcttggg tggcccttcc acagttcaaa agacccctt cggcaccctt      360
cctgggtatg aacctggaa aanggnantt aanctttctt ggca      404

<210> 282
<211> 507
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(507)

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<223> n = A,T,C or G

<400> 282

agcgtggtcg cggccgaggt ctggatgct cctgctgtca cagttagata ttacaggatc	60
acttacggag aaacaggagg aaatagccct gtccaggagt tcactgtgcc tgggagcaag	120
tctacagcta ccatacgccg ccttaaacct ggagttgatt ataccatcac tgtgtatgct	180
gtcaactggcc gtggagacag ccccgcaagc agcaagccaa ttccattaa ttacccaaca	240
gaaattgaca aaccatcccc gatgcaagt accgatgttc aggacaacag cattagtgtc	300
aagtggctgc cttcaaggtt ccctggtaact gggttacaga ntaaccacca ctcccaaaaa	360
tggaccagga accacaaaaa cttaaaactgc agggtccaga tcaaaacaga aatgactatt	420
gaangcttgc agcccacagt gggagtatgn ggtagtgnc tatgcttcag aatccaagcg	480
aaaaaaaaatc aaccccttntg ggttcaa	507

<210> 283

<211> 325

<212> DNA

<213> Homo sapien

<220>

<221> misc\_feature

<222> (1)...(325)

<223> n = A,T,C or G

<400> 283

tcgagcggcc gccccggcag gtccttgcag ctctgcagtg tcttcttcac catcagggtgc	60
agggaaatgc tcatggattc catcctcagg gtcgcagtag gtcacccctgt acctggaaac	120
ttggccctgt gggcttcccc aagcaatttt gatggaatcg acatccacat cagtgaatgc	180
cagtccttta qggcgatcaa tggtggttac tgcagnctga accagaggct gactctctcc	240
gcttggatc tgagcataga cactaaccac atactccact gtgggctgca anccttcaat	300
aanncatttc tgtttgcgtt ggacc	325

<210> 284

<211> 331

<212> DNA

<213> Homo sapien

<220>

<221> misc\_feature

<222> (1)...(331)

<223> n = A,T,C or G

<400> 284

tcgagcggcc gccccggcag gtctgggg gtcctggcac acgcacatgg gggngttgnt	60
ctnatccagc tgccccagccc ccattggcga gtttgagaag gtgtgcagca atgacaacaa	120
naccttcgac tcttcctgcc acttctttgc cacaaggcgc accctggagg gcaccaagaa	180
ggggccacaaag ctccacactgg actacatcgg gccttgc当地 tacatcccccttgg	240
ctctgagctg accgaatccc cccttgcgc当地 tgccggactg gctcaagaac cgtcttggca	300
cccttgc当地 anagggatga agacacnacc c	331

<210> 285

<211> 509

<212> DNA

<213> Homo sapien

<220>

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<221> misc_feature
<222> (1)...(509)
<223> n = A,T,C or G

<400> 285
agcgtggtcg cggccgaggt ctgtcctaca gtcctcagga ctctactccc tcagcagcgt      60
ggtagccgtg ccctccagca acttcggcac ccagacctac acctgcaacg tagatcacaa     120
ggccagcaac accaagggtgg acaagagagt tgagcccaa tcttgtgaca aaactcacac     180
atgccccaccg tgcccgacac ctgaactctt ggggggaccg tcagtcttcc tcttcccccg     240
catccccctt ccaaacctgc cccggcggcc gctcgaaagc cgaattccag cacactggcg     300
gcccgtacta gtgganccna acttgggnanc caacctggng gaantaatgg gcataanctg     360
tttctgggg gaaattggta tccngttac aattcccnca caacatacga gccggaagca     420
taaaaagncta aaaggctggg gngggctan tgaagtgaag ctaaactcac attaattnge     480
gttgccgctc actggcccgc tttccagc      509

<210> 286
<211> 336
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(336)
<223> n = A,T,C or G

<400> 286
tcgagcggcc gccccggcag gtttggaaagg gggatgcggg ggaagaggaa gactgacgg      60
ccccccagga gttcaggtgc tgggcacggt gggcatgtgt gagttttgtc acaagatttg     120
ggctcaactc tcttgccac cttgggtgtt ctgggcttgc gatctacgtt qcaggtgttag     180
gtctgggngc cgaagttgtt ggagggcacg gtcacccacgc tgctgagggg qtagagtctt     240
gaggactgtt ngacagaccc cggccgngac cacgctaagc cgaattctgc agatatccat     300
cacactggcg gcccgtccga gcatgcattt tagagg      336

<210> 287
<211> 30
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(30)
<223> n = A,T,C or G

<400> 287
agcgtggncg cggacganga caacaacccc      30

<210> 288
<211> 316
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(316)
<223> n = A,T,C or G

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<400> 288  
tcgagcgccc gccccggcag gnccacatcg gcagggtcgg agccctggcc gccataactcg 60  
aacttggaaatc catcggtcat gctttgcgg aaccagacat gcctttgtc cttgggggttc 120  
ttgctgtatgn accagttctt ctgggccaca ctgggctgag tgggttacac gcaggctca 180  
ccagtcctcca tggcagaa gactttgtatg gcatccagggt tgccagcttg gttgggggtca 240  
atccagtagt acttccactt ccagtcagag tggcacatct tgaggtcacg gcaggtgcgg 300  
gcgggggtct tgacct 316

<210> 289  
<211> 308  
<212> DNA  
<213> Homo sapien

<220>  
<221> misc\_feature  
<222> (1)...(308)  
<223> n = A,T,C or G

<400> 289  
agcgtggtcg cggccgaggt ccagcctgga gataanggtg aagggttgtc ccccgactt 60  
ccaggtagatcg ctggacactcg ttgttagccct ggtgagagag gtgaaaactgg ccctccagga 120  
cctgctgttt tccctgggtc ttctggacag aatggtaaac ctggnggtaa aggagaaaa 180  
ggggctccgg ntgananaagg tgaaggaggc ctcctgnat tggcaggggc cccangactt 240  
agaggtggag ctggccccc tggcccccggaa ggaggaaagg gtgctgctgg tcctcctggg 300  
ccacactgg 308

<210> 290  
<211> 324  
<212> DNA  
<213> Homo sapien

<220>  
<221> misc\_feature  
<222> (1)...(324)  
<223> n = A,T,C or G

<400> 290  
tcgagcgccc gccccggcag gtctggccca ggaggaccaa taggaccagt aggacccctt 60  
ggcccattt tccctggac accatcagca cctggaccgc ctgttcacc cttgtcaccc 120  
tttggaccag gacttccaag acctcttctt tctccaggca ttccctgtcag accaggagta 180  
ccancagcac cagtgggccc aggaggacca gcagcaccc ttccctccttc gggaccagg 240  
ggaccagatc cacctctaag ttctggggcc cctgccaatc cagggggcc tccttcaccc 300  
ttctcaccgg gagccctctt ttct 324

<210> 291  
<211> 278  
<212> DNA  
<213> Homo sapien

<220>  
<221> misc\_feature  
<222> (1)...(278)  
<223> n = A,T,C or G

```

<400> 291
tcgagcgccc gccccggcag gtccaccggg atattcgaaa gtcgtggcagg aatgggaggc      60
atccagaacg agaaggagac catgcaaagc ctgaacgacc gcctggcctc ttacctggac      120
agagtggagac gcctggagac cgacaaccgg aggctggaga gcaaaatccg ggagcacctt      180
gagaagaagg gaccccaggt cagagactgg agccattact tcaagatcat cgaggacctg      240
agggctcana tcttcgcaaa tactgcngac aatgcccg      278

<210> 292
<211> 299
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(299)
<223> n = A,T,C or G

<400> 292
atgcgnggtc gccccggcag accanctctg gctcataactt gactctaaag ncntcaccag      60
nанттacgn cattgccaat ctgcagaacg atgcggcat tgtccgcant atttgcgaag      120
atctgagccc tcaggnccctc gatgatcttg aagtaanggc tccagtctct gacctggggt      180
cccttcttctt ccaagtgtc ccggattttg ctctccagec tccggtttc ggtctccaag      240
ncttctcaact ctgtccagga aaagaggcca ggcggncgat cagggtttt gcatggact      299

<210> 293
<211> 101
<212> DNA
<213> Homo sapien

<400> 293
agcggtgtcg cggccgaggt tgtacaagct ttttttttt ttttttttt ttttttttt      60
tttttttttt ttttttttt ttttttttt ttttttttt t      101

<210> 294
<211> 285
<212> DNA
<213> Homo sapien

<220>
<221> misc_feature
<222> (1)...(285)
<223> n = A,T,C or G

<400> 294
tcgagcgccc gccccggcag gtctgccaac accaagattg gccccccgg catccacaca      60
gttnngtgtc ggggaggtaa caagaaatac cgtgccctga ggntggacgn gggaaatttc      120
tcctgggct cagagtgttg tactcgtaaa acaaggatca tcgatgttgt ctacaatgca      180
tctaataacg agctgggtcg taccaagacc ctggtaaga attgcacatgt gctcatngac      240
agcacaccgt accgacagtg ggtaccgaag tcccactatg cnccct      285

<210> 295
<211> 216
<212> DNA
<213> Homo sapien

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<400> 295  
 tcgagcggcc gccccggcag gtccaccaca cccaatttctt tgctggatc atggcagccg 60  
 ccacgtgcca ggattacccgg ctacatcate aagtatgaga agectgggtc ttctcccaga 120  
 gaagtggtcc ctcggccccc ccctgggtgc acagaggcta ctattactgg cctggaaaccg 180  
 ggaaccgaat atacaattta tgtcattgcc ctgaag 216

<210> 296  
 <211> 414  
 <212> DNA  
 <213> Homo sapien

<220>  
 <221> misc\_feature  
 <222> (1)...(414)  
 <223> n = A,T,C or G

<400> 296  
 agcggtgnctn cggccgagga tggggaaagct cgncgtgtttt tttccttcca atcaggggt 60  
 nnntcttctg attattcttc agggcaanga cataaaattgt atatcggtt cccgggttcca 120  
 gnccagtaat agtagcctct gtgacaccag ggcggggccg agggaccact tctctggag 180  
 gagaccagg ctttcataac ttgtatgtga agccggtaat cctggcacgt gggcggtgc 240  
 catgataccca ccaangaatt ggggtgtggtg gacctgcccc ggcggggccgc tcgaaaaancc 300  
 gaattcntrgc aagaataatcc atcacacttg ggcggggccgn tcgaaccatg catcntaaaa 360  
 gggcccaat ttccccctta ttaggngaag ccncatttaa caaattccac ttgg 414

<210> 297  
 <211> 376  
 <212> DNA  
 <213> Homo sapien

<220>  
 <221> misc\_feature  
 <222> (1)...(376)  
 <223> n = A,T,C or G

<400> 297  
 tcgagcggcc gccccggcag gtctcgccgt cgcaactggtg atgctggtcc tgggtccc 60  
 cccggccctc ctggacctcc tggtccccct ggtctccca ggcgtggttt cgacttcagc 120  
 ttccctgcccc agccacctca agagaaggct cacgtggtg gcccgtacta cccgggtgtat 180  
 gatgc当地 atggttcgtga ccgtgaccc gagggtggaca ccaccctcaa ggcctttag 240  
 ccagcagaat cgaaaacatt cggAACCCAA gaaggcaag cccgcaaaaga aaccccgccc 300  
 gcacctgccc gngaacctcc aagaangtgc ccacntcttg actggaaaaaa aaaggaaaa 360  
 ntacttgaa ttggac 376

<210> 298  
 <211> 357  
 <212> DNA  
 <213> Homo sapien

<220>  
 <221> misc\_feature  
 <222> (1)...(357)  
 <223> n = A,T,C or G

<400> 298

agcgtggtcg cggccgaggt ccacatcgcc agggtcggag ccctggccgc catactcgaa	60
ctggaatcca tcggcatgc tctcgccgaa ccagacatgc ctcttgcct tggggttctt	120
gctgatgtac cagtettct gggccacact gggctgagtg ggttacacgc aggtctcacc	180
agtctccatg ttgcagaaga ctttgcatggc atccagggtt cagccttgg tggggtaat	240
ccagtaactt ccacttccc agtcagaagt ggcacatctt gaggtcacgg cagggtgccg	300
gcggggttct tgcgggetgc cttctgggc tccccgaatg ttctnnngac ttgctgg	357
<210> 299	
<211> 307	
<212> DNA	
<213> Homo sapien	
<220>	
<221> misc_feature	
<222> (1)...(307)	
<223> n = A,T,C or G	
<400> 299	
agcgtggtcg cggccgaggt ccactagagg tctgtgtgcc attgcccagg cagagtctct	60
gcgttacaaa ctccttaggag ggcttgcgt gcggaggccc tgctatggtg tgctgcgggt	120
catcatggag agtggggcca aaggctgcga ggttgggttgc tctggaaac tccgaggaca	180
gaggggctaaa tccatgaagt ttgtggatgg cctgatgatc cacagcggag accctgttaa	240
ctactacgtt gacacttgct tgcgtgcac gtgttgcata nacangggtg ggctggcat	300
caaggng	307
<210> 300	
<211> 351	
<212> DNA	
<213> Homo sapien	
<400> 300	
tcgagcgccc gccccggcag gtctgccaag gagacctgt tatgctgtgg ggactggctg	60
gggcatggca ggcgcgtctg gttcccacc cttctttctt gagatggggg tgggtggcag	120
tatctcatct ttgggttcca caatgctcac gtggtcaggc aggggcttct tagggccaat	180
cttaccagtt gggtcccagg gcagcatgat cttcacctt atgcccagca caccctgtt	240
gagcaacacg tggcgcacag caagtgtcaa cgtaagtaag ttaacagggt ctccgctgt	300
gatcatcagg ccatccacaa acttcatgga tttaccctc tgcgttcgga g	351
<210> 301	
<211> 330	
<212> DNA	
<213> Homo sapien	
<400> 301	
tcgagcgccc gccccggcag gtgtttcaga ggttccaagg tccactgtgg aggtcccagg	60
agtgcgtggc gtgggcacag aggtcccgatg ggtgaaacca ttgacataga gactgttct	120
gtccagggtt tagggggcca gcttttgc gccattggcc agtggctca gctcccagta	180
cagccgcctt ctgttgatc cagggtttttt ggggtcaaga tggatggatgc agatggcatc	240
cactccagtg gctgctccat cttcttcggg cctgagagag gtcagtctgc agccagagta	300
cagagggcca acactgggt tctttgaata	330
<210> 302	
<211> 317	
<212> DNA	
<213> Homo sapien	

<220>  
<221> misc\_feature  
<222> (1)...(317)  
<223> n = A,T,C or G

<400> 302  
agcgtggtcg cggccgaggt ctgtactggg agctaagcaa actgaccaat gacattgaag 60  
agctgggccct acaccacccgt gacaggaaaca gtctctatgt caatggtttcc acccatcaga 120  
gtctgttgcc caccaccaggc actcctggga cctccacagt ggatttcaga acctcaggga 180  
ctccatccctc cctctccaggc cccacaatta tggctgtgg ccctctctgt gtaccattca 240  
ccctcaacctt caccatcacc aacctgcagt atggggagga catgggtcac cctgnctcca 300  
ggaagttcaa caccaca 317

<210> 303  
<211> 283  
<212> DNA  
<213> Homo sapien

<220>  
<221> misc\_feature  
<222> (1)...(283)  
<223> n = A,T,C or G

<400> 303  
tcgagcgccc gccccggacag gtctgggcgg atagcaccgg gcatattttgaatggatga 60  
ggctctggcac cctgagcagt ccagcgagga ctgggtctta gttgagcaat ttggcttagga 120  
ggatagtagtgcagcacggnt ctgagnctgt gggatagctg ccatgaagta acctgaagga 180  
ggtgctggct ggtangggtt gattacaggg ttgggaacag ctcgtacact tgccattctc 240  
tgcataatact ggttagtgag gtgagcctgg ccctttctt ttg 283

<210> 304  
<211> 72  
<212> DNA  
<213> Homo sapien

<220>  
<221> misc\_feature  
<222> (1)...(72)  
<223> n = A,T,C or G

<400> 304  
agcgtggtcg cggccgaggt gagccacagg tgaccggggc tqaagctggg gctgtggnc 60  
ctgctggtcc tg 72

<210> 305  
<211> 245  
<212> DNA  
<213> Homo sapien

<220>  
<221> misc\_feature  
<222> (1)...(245)  
<223> n = A,T,C or G

<400> 305  
 cagcngctcc nacggggcct gngggaccaa caacaccgtt ttcaccctta ggccctttgg 60  
 ctccctttc tccttagca ccagggtgac cagcagcncc ancaggacca gcaaatccat 120  
 tggggccagc aggaccgacc tcaccacgtt caccaggctt tcccccggga ccagcaggac 180  
 cagcaggacc agcagccccca gttcgcccc ggtcacctgt ggctcacctc ggccgcgacc 240  
 acgct 245

<210> 306  
 <211> 246  
 <212> DNA  
 <213> Homo sapien

<220>  
 <221> misc\_feature  
 <222> (1)...(246)  
 <223> n = A,T,C or G

<400> 306  
 tcgagcggtc gccccggcag gtccaccggg atagccggg gtctggcagg aatgggaggg 60  
 atccagaacg agaaggagac catgcaaagc ctgaacgacc gcctggcctc ttacctggac 120  
 agagtggaga gcctggagac cganaaccgg aggctggana gaaaaatccg ggagcacttg 180  
 gagaagaagg gaccggcaggta caagagactg gagccattac ttcaagatca tcgaggggacc 240  
 tggagg 246

<210> 307  
 <211> 333  
 <212> DNA  
 <213> Homo sapien

<220>  
 <221> misc\_feature  
 <222> (1)...(333)  
 <223> n = A,T,C or G

<400> 307  
 agcgnggtcg cggccgaggt ccagctctgt ctcataactt actctaaagt catcagcagc 60  
 aagacgggca ttgtcaatct gcagaacgt gcgggcattt tccgcagtat ttgcgaagat 120  
 ctgagccctc aggttctcgta tgatcttggaa gtaatggctc cagttctgtt cttggggtcc 180  
 cttttctcc aagtgttccc ggattttgtt ctccagccctc cggttctcg tttccagggt 240  
 cctcaacttg tccaggtaag aaggccagg cggtcgttca ggcttgcat ggtctcccttc 300  
 tcgttcttggaa tgcctccat ttctgccaga ccc 333

<210> 308  
 <211> 310  
 <212> DNA  
 <213> Homo sapien

<400> 308  
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 ttccacctgt gtcggaca tctccaggaa gtgcagaagg gaagcagggtc aaactgttca 120  
 gatcgttgcgacttgcgtt ctcgttctc accttggcaaa ggtcgttgc cagccaggat 180  
 acagaggggcc aacactgggtt ttcttggaa aaggcttggag cagaccctgc agaacccttc 240  
 tccgtgggtt tgaacttccct ggaaaccagg gtgttgcattt tttttctca taatgcagg 300  
 ttgggtatgg 310

<210> 309  
 <211> 429  
 <212> DNA  
 <213> Homo sapien

<400> 309  
 agcgtggtcg cggccgaggt ccacatccgc agggtcggag ccctggccgc cataactcgaa 60  
 ctggaatcca tcggtcatgc tctcgccgaa ccagacatgc ctcttgcct tggggttctt 120  
 gctgatgtac cagttttctt gggccacact gggctgagtg gggacacccg caggctcac 180  
 cagttccat gttcagaag actttgtgg catccagggtt gcagccttgg ttggggtcaa 240  
 tecagtaacttccactt cagtcagaag tgggcacatc ttgaggtcac cggcagggtgc 300  
 cggccgggg gttctgcgg cttgcctct gggctccgga tggtctcgat ctgcttggt 360  
 caggetcttgcggg agggtgggttccacctcga ggtcacggtc accgaaacct gcccggccgg 420  
 cccgctcga 429

<210> 310  
 <211> 430  
 <212> DNA  
 <213> Homo sapien

<220>  
 <221> misc\_feature  
 <222> (1)...(430)  
 <223> n = A,T,C or G

<400> 310  
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 agcctgagcc agcagatcga aaacatccgg agcccagagg gcagccgcaa gaacccccc 120  
 cgcacccgtcc gtgaccccaa gatgtgccac tctgactggaa agagtggaga gtactggatt 180  
 gaccccaacc aaggctgcaaa cctggatgcc atcaaagtct tctgcaacat ggagactgg 240  
 gagacccgtcg tgcgtacccac tcagcccaatgtt gttggcccaag aagaaaactgg tacatcaga 300  
 aggaacccca aggacaagag gcattgtttt ggttcggcga gnagcatgac ccgatggatt 360  
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 gaccaccgct 430

<210> 311  
 <211> 2996  
 <212> DNA  
 <213> Homo sapien

<400> 311  
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 cctacccctt ggacaggac agtctctatg tcaatggttt cacacagccg agtctgtgc 180  
 ccaccactag cattcctggg accccccacag tggacctggg aacatctggg actccagtt 240  
 ctaaacctgg tccctcggct gccagccctc tccctgggtctt attcactctc aacttccacca 300  
 tcaccaacctt gccgttatgag gagaacatgc agcaccctgg ctccaggaag ttcaacacca 360  
 cggagagggc ctttcaggc ctggccctgtt tcaagagca ccagtgttgg ccctctgtac 420  
 tctggctgca gactgacttt gctcaggcct gaaaaggatg ggacagccac tggagtgat 480  
 gccatctgca cccaccaccc tgaccccaaa agcccttaggc tggacagaga gcagctgtat 540  
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 gacagccctt ttgtcaatgg tttcaactcat cggagctctg tgccaccac cagcactct 660  
 gggacccca cagttatctt gggagcatct aagactccag cctcgatatt tggcccttca 720  
 gctgccagcc atctcctgtat actattcacc ctcaacttca ccatcactaa cctgcggat 780  
 gaggagaaca tgtggccctgg ctccaggaag ttcaacacta cagaggggt cttcaggc 840

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cgccctgacc	ccacaggccc	ttggctggac	agagagcage	tgtatttgg	gctgagccag	1020
ctgaccacca	gcatcaactga	gtctggcccc	tacacactgg	acagggacag	tctctatgtc	1080
aatggttca	cccatacgag	ctctgtaccc	accaccagca	ccgggggtgg	cagcgaggag	1140
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ccaggtctgc	ctataaagca	gttgttccat	gagctgagcc	agcagaccca	tggcatcacc	1440
cggctggccc	cctactctct	ggacaaagac	agecttacc	ttaacggta	aatgaacct	1500
ggtccagatg	agcctcctac	aactccaa	ccagccacca	catctctgc	tcctctgtca	1560
gaagccacaa	cagccatggg	gtaccacctg	aagaccctca	cactcaactt	caccatctcc	1620
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acctgcac	accacccctga	ccctgtgggc	cccggtctgg	acatacagca	gtttaactgg	1860
gagctgagtc	agctgaccca	ttgtgtcacc	caactggct	tctatgtct	ggacaggat	1920
agcctctca	tcaatggcta	tgcacccca	aatttatcaa	tccggggcga	tgaccagata	1980
aatttccaca	ttgtcaactg	gaacctcagt	aatccagacc	ccacatcctc	agagtacatc	2040
accctgcgt	ggggacatcca	ggacaagg	accacactct	acaaaggcag	tcaactacat	2100
gacacatcc	gcttctgcct	ggtcaccac	ttgacgatgg	actccgtt	ggtcactgtc	2160
aaggcatgt	tctccctcaa	tttgaccccc	agcctgtgg	agaactgttt	tctagataag	2220
accctgaatg	cctcatttca	ttggctgggc	tccacctacc	agttgggtga	catccatgtg	2280
acagaaatgg	agtcatcgt	ttatcaacca	acaagcagct	ccagcacc	gcacttctac	2340
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aatttccaga	ggaaacaaaag	gaatattgag	gatgcgtca	accaactt	ccgaaacagc	2460
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gttgcacat	atgaggaatt	tctgcggat	acccggat	gtacccagct	gcagaacttc	2640
accctggaca	ggagcagtgt	ccttgcgt	gggtat	ccacacagaa	tgagccctta	2700
actggaaatt	ctgaccttcc	tttctgggc	gtcatcctca	tcgcttggc	aggactcctg	2760
ggactcatca	catgcgtat	ctgcgggtc	ctggtgacca	ccgcggcgg	gaagaaggaa	2820
ggagaataca	acgtccagca	acagtgc	ggctactacc	agtcacac	agacctggag	2880
gatctcaat	gactgaaact	tgccgggtc	tgggtgcct	ttcccccagc	cagggtccaa	2940
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&lt;210&gt; 312

&lt;211&gt; 914

&lt;212&gt; PRT

&lt;213&gt; Homo sapien

&lt;400&gt; 312

Met	Ser	Met	Val	Ser	His	Ser	Gly	Ala	Leu	Cys	Pro	Pro	Leu	Ala	Phe	
1								5		10				15		
Leu	Gly	Pro	Pro	Gln	Trp	Thr	Trp	Glu	His	Leu	Gly	Leu	Gln	Phe	Leu	
								20		25				30		
Asn	Leu	Val	Pro	Arg	Leu	Pro	Ala	Leu	Ser	Trp	Cys	Tyr	Ser	Leu	Ser	
								35		40				45		
Thr	Ser	Pro	Ser	Pro	Thr	Cys	Gly	Met	Arg	Arg	Thr	Cys	Ser	Thr	Leu	
								50		55				60		
Ala	Pro	Gly	Ser	Ser	Thr	Pro	Arg	Arg	Gly	Ser	Phe	Arg	Ala	Trp	Ser	
								65		70				75		80
Leu	Phe	Lys	Ser	Thr	Ser	Val	Gly	Pro	Leu	Tyr	Ser	Gly	Cys	Arg	Leu	
								85		90				95		

Thr Leu Leu Arg Pro Glu Lys Asp Gly Thr Ala Thr Gly Val Asp Ala  
100 105 110  
Ile Cys Thr His His Pro Asp Pro Lys Ser Pro Arg Leu Asp Arg Glu  
115 120 125  
Gln Leu Tyr Trp Glu Leu Ser Gln Leu Thr His Asn Ile Thr Glu Leu  
130 135 140  
Gly Pro Tyr Ala Leu Asp Asn Asp Ser Leu Phe Val Asn Gly Phe Thr  
145 150 155 160  
His Arg Ser Ser Val Ser Thr Thr Ser Thr Pro Gly Thr Pro Thr Val  
165 170 175  
Tyr Leu Gly Ala Ser Lys Thr Pro Ala Ser Ile Phe Gly Pro Ser Ala  
180 185 190  
Ala Ser His Leu Leu Ile Leu Phe Thr Leu Asn Phe Thr Ile Thr Asn  
195 200 205  
Leu Arg Tyr Glu Glu Asn Met Trp Pro Gly Ser Arg Lys Phe Asn Thr  
210 215 220  
Thr Glu Arg Val Leu Gln Gly Leu Leu Arg Pro Leu Phe Lys Asn Thr  
225 230 235 240  
Ser Val Gly Pro Leu Tyr Ser Gly Cys Arg Leu Thr Leu Leu Arg Pro  
245 250 255  
Glu Lys Asp Gly Glu Ala Thr Gly Val Asp Ala Ile Cys Thr His Arg  
260 265 270  
Pro Asp Pro Thr Gly Pro Gly Leu Asp Arg Glu Gln Leu Tyr Leu Glu  
275 280 285  
Leu Ser Gln Leu Thr His Ser Ile Thr Glu Leu Gly Pro Tyr Thr Leu  
290 295 300  
Asp Arg Asp Ser Leu Tyr Val Asn Gly Phe Thr His Arg Ser Ser Val  
305 310 315 320  
Pro Thr Thr Ser Thr Gly Val Val Ser Glu Glu Pro Phe Thr Leu Asn  
325 330 335  
Phe Thr Ile Asn Asn Leu Arg Tyr Met Ala Asp Met Gly Gln Pro Gly  
340 345 350  
Ser Leu Lys Phe Asn Ile Thr Asp Asn Val Met Lys His Leu Leu Ser  
355 360 365  
Pro Leu Phe Gln Arg Ser Ser Leu Gly Ala Arg Tyr Thr Gly Cys Arg  
370 375 380  
Val Ile Ala Leu Arg Ser Val Lys Asn Gly Ala Glu Thr Arg Val Asp  
385 390 395 400  
Leu Leu Cys Thr Tyr Leu Gln Pro Leu Ser Gly Pro Gly Leu Pro Ile  
405 410 415  
Lys Gln Val Phe His Glu Leu Ser Gln Gln Thr His Gly Ile Thr Arg  
420 425 430  
Leu Gly Pro Tyr Ser Leu Asp Lys Asp Ser Leu Tyr Leu Asn Gly Tyr  
435 440 445  
Asn Glu Pro Gly Pro Asp Glu Pro Pro Thr Thr Pro Lys Pro Ala Thr  
450 455 460  
Thr Phe Leu Pro Pro Leu Ser Glu Ala Thr Thr Ala Met Gly Tyr His  
465 470 475 480  
Leu Lys Thr Leu Thr Leu Asn Phe Thr Ile Ser Asn Leu Gln Tyr Ser  
485 490 495  
Pro Asp Met Gly Lys Gly Ser Ala Thr Phe Asn Ser Thr Glu Gly Val  
500 505 510  
Leu Gln His Leu Leu Arg Pro Leu Phe Gln Lys Ser Ser Met Gly Pro  
515 520 525  
Phe Tyr Leu Gly Cys Gln Leu Ile Ser Leu Arg Pro Glu Lys Asp Gly

530	535	540
Ala Ala Thr Gly Val Asp Thr Thr Cys Thr Tyr His Pro Asp Pro Val		
545	550	555
Gly Pro Gly Leu Asp Ile Gln Gln Leu Tyr Trp Glu Leu Ser Gln Leu		560
565	570	575
Thr His Gly Val Thr Gln Leu Gly Phe Tyr Val Leu Asp Arg Asp Ser		
580	585	590
Leu Phe Ile Asn Gly Tyr Ala Pro Gln Asn Leu Ser Ile Arg Gly Glu		
595	600	605
Tyr Gln Ile Asn Phe His Ile Val Asn Trp Asn Leu Ser Asn Pro Asp		
610	615	620
Pro Thr Ser Ser Glu Tyr Ile Thr Leu Leu Arg Asp Ile Gln Asp Lys		
625	630	635
Val Thr Thr Leu Tyr Lys Gly Ser Gln Leu His Asp Thr Phe Arg Phe		640
645	650	655
Cys Leu Val Thr Asn Leu Thr Met Asp Ser Val Leu Val Thr Val Lys		
660	665	670
Ala Leu Phe Ser Ser Asn Leu Asp Pro Ser Leu Val Glu Gln Val Phe		
675	680	685
Leu Asp Lys Thr Leu Asn Ala Ser Phe His Trp Leu Gly Ser Thr Tyr		
690	695	700
Gln Leu Val Asp Ile His Val Thr Glu Met Glu Ser Ser Val Tyr Gln		
705	710	715
Pro Thr Ser Ser Ser Thr Gln His Phe Tyr Leu Asn Phe Thr Ile		720
725	730	735
Thr Asn Leu Pro Tyr Ser Gln Asp Lys Ala Gln Pro Gly Thr Thr Asn		
740	745	750
Tyr Gln Arg Asn Lys Arg Asn Ile Glu Asp Ala Leu Asn Gln Leu Phe		
755	760	765
Arg Asn Ser Ser Ile Lys Ser Tyr Phe Ser Asp Cys Gln Val Ser Thr		
770	775	780
Phe Arg Ser Val Pro Asn Arg His His Thr Gly Val Asp Ser Leu Cys		
785	790	795
Asn Phe Ser Pro Leu Ala Arg Arg Val Asp Arg Val Ala Ile Tyr Glu		800
805	810	815
Glu Phe Leu Arg Met Thr Arg Asn Gly Thr Gln Leu Gln Asn Phe Thr		
820	825	830
Leu Asp Arg Ser Ser Val Leu Val Asp Gly Tyr Phe Pro Asn Arg Asn		
835	840	845
Glu Pro Leu Thr Gly Asn Ser Asp Leu Pro Phe Trp Ala Val Ile Leu		
850	855	860
Ile Gly Leu Ala Gly Leu Leu Gly Leu Ile Thr Cys Leu Ile Cys Gly		
865	870	875
Val Leu Val Thr Thr Arg Arg Arg Lys Lys Glu Gly Glu Tyr Asn Val		880
885	890	895
Gln Gln Gln Cys Pro Gly Tyr Tyr Gln Ser His Leu Asp Leu Glu Asp		
900	905	910
Leu Gln		

<210> 313  
<211> 656  
<212> DNA  
<213> Homo sapiens

&lt;400&gt; 313

acagccagtc ggagctgaa gtgttctggg tggatcgcy atatgcactc aaaatgctct 60  
ttgttaaaggaa aagccacaac atgtccaagg gacctgagc gacttggagg ctgagcaaag 120  
tgcagtttgt ctacgaetcc tcggagaaaa cccactcaa agacgcagtc agtgcgtgg 180  
agcacacagc caactcgac cacctctcg ccttggtcac ccccgtggg aagtcttatg 240  
agtgtcaagg tcaacaaaacc atttcaactgg cctctagtgta tccgcagaag acggtcacca 300  
tgatcctgtc tgccgtccac atccaacett ttgacattat ctcagatttt gtcttcagtg 360  
aagagcataa atgcccagtg gatgagcggg agcaactgga agaaaccttg cccctgattt 420  
tggggctcat cttgggctc gtcatcatgg taacactcgc gatttaccac gtccaccaca 480  
aatgactgc caaccagggtg cagatccctc gggacagatc ccagtataag cacatggct 540  
agaggccgtt aggccggcac cccctattcc tgctccccca actggatcag gtagaacaac 600  
aaaagcactt ttccatcttg tacacgagat acaccaacat agctacaatc aaacag 656

&lt;210&gt; 314

&lt;211&gt; 519

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 314

tgccgtggga ccagtcagct tccgggtgtg actggagcag ggcttgcgt cttcttcaga 60  
gtcactttgc aggggttgtt gaagctgctc ccattccatgt acagctccca gtctactgat 120  
gtttaaggat ggtctcggtg gttaggccca ctagaataaa ctgagtc当地 tacctctaca 180  
cagttatgtt taactggct ctctgacacc gggagggagg tggcggggtt taggtgttgc 240  
aaacttcaat ggttatgcgg ggatgttcac agagcaagct ttggtatcta gctagtctag 300  
cattcatttag ctaatgggtt ctttggat ttattaaaat caccacagca tagggggact 360  
ttatgtttag gttttgtcta agagtttagt tatctgctc ttgtgtaac aggctattt 420  
ctaccaggga ctttggacat gggggccagc gtttggaaac ctcatctagt tttttgaga 480  
gataggccac tggccttggaa cctcgccgc gaccacgct 519

&lt;210&gt; 315

&lt;211&gt; 441

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 315

cacagagcgt ttattgacac caccactcct gaaaattggg atttcttatt agttccccct 60  
aaaagttccc atgttggatta catgtaaata gtcacatata tacaatgaag gcagtttctt 120  
cagaggcaac cagggtttat agtgcgttgtt aaatgtcatc tcttttgcgt tactgactca 180  
ttgtcaaacg tctctgcact gtttcagcc tctccacgtt gcctctgtcc tgcttcttag 240  
ttccttcttt gtgacaaaacc aaaagaataa gaggatttag aacaggactg cttttccct 300  
atgatttaaa aattccaaatg acttgcggcc ttgggagaaa ttccaaagga aatctctctc 360  
gctcgctctc tccgtttcc ttgtgagct tctggggag gtttagtggt gacttttga 420  
tacaaaaaaaaa tgcattttgtt g 441

&lt;210&gt; 316

&lt;211&gt; 247

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 316

tggcgccggct gctggatttc accttcttgc acctgccggt gagcgccctgg ggtctaaagg 60  
ggcgggatac tccattatgg cccctcgccc ttagggctg gaatagttttag aaaaggcaac 120  
ccagtcgtac ttggtaagaa gagagacatg ccccaaccc cggcgccctt ttccctcacg 180  
atctgtgttc ttacttcag cgactgcagg agttcacct gcaagaaaac agcattgagc 240  
tgctgac 247

<210> 317  
<211> 409  
<212> DNA  
<213> Homo sapiens

<400> 317  
tgacagggtt cctggagtt ttaagtacc aagttagtgc agggatgga cactgcccc 60  
cacgatgtgg gatgaacagc agccctgggt tgtagccag ggtgtccatg gatttgaccc 120  
aatgctccc tggagccctt gtggcgagga caggcaactgg atggccaga ccctctggct 180  
ggaggagttt tggagccagg actgggcctt cagccatggat ggttccatggatggatgg 240  
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ctgtcaggaa cctggccctt ggagggtca ggtgagctca caaggagagg tcaaggccaag 360  
ccaaagggtt ggkaacacac aacaccagg gaaaccagcc cccaaacca 409

<210> 318  
<211> 320  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc\_feature  
<222> (1)...(320)  
<223> n = A,T,C or G

<400> 318  
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gtcattggtc aggaagctgt cctggacgtt ggccatctcc acatccatgg ggatgccata 180  
gtcactgggc ctttgcctgg gaggaggcat cacccagaaa ggccgagatct tggactcggg 240  
gcctgggtt ccagaatagt aaggggagca nacccggcgg aggccaggctt ggaaggccatt 300  
gctggagccc tgcagccgca 320

<210> 319  
<211> 212  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc\_feature  
<222> (1)...(212)  
<223> n = A,T,C or G

<400> 319  
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ggcctcagag ccctgtaaa tgtgaccctt tttgggggtct ttttcaaccc anacctggtc 180  
accctgctgc agacctcgcc cgccaccacg ct 212

<210> 320  
<211> 769  
<212> DNA  
<213> Homo sapiens

<400> 320

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tggagggcgt ctttctccat caagcgatac tgagcaggg tactcagatc tttcttgaa 180  
cctacaagga agagaagcac acttggaaagg tcattctct tcagggcatc gcccagccac 240  
tgcctgccat gggaggtgaa aagtaaggaa tgagttagtc tgcaaggccc ctccccactga 300  
cattcatagg cccaaattacc ccctctctgg tcctacatgc attttcttc ttcttgacca 360  
ccccctcttt ctgaaccctc tttcccgaa gcctccatt atattgcagg atgtctactt 420  
acttggtatg ttccagagat gccacatcat tcaggttcaa gacaatgtatg atggcttgg 480  
agagtggcag aaacagcccc agttgacag ggaagacact actgtctatt tcccaatcc 540  
ttccagctcc atatgagaaa gccatgtgca ctctgagacc cacctacccc acttcaccca 600  
gcccccttacc ttgagctctt ctatagtagg ttgatgcaat gcatttgaac ctctctgtcc 660  
cagcggatc ccaactggaa ggaaggaaga gtgaagcaca ggtatgtatc ttgggggggtg 720  
tgggtgctgg ggagaaggaa tagctggaa gggtgtgaa gcactcaca 769

<210> 321

<211> 690

<212> DNA

<213> Homo sapiens

<220>

<221> misc\_feature

<222> (1)...(690)

<223> n = A,T,C or G

<400> 321

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cctactcccc cggaggcaac tggagggtca acggaaagac aatcatcccc tataagaagg 120  
gtgcctgggt ttcgctctgc acagccagt tctcaggctg cttcaaagcc tgggaccatg 180  
caggggggct ctgtgagggtc cccaggaatc cttgtcgat gagctgcccag aaccatggac 240  
gtctcaacat cagcacctgc cactgcccact gtccccctgg ctacacgggc agatactgcc 300  
aagtgggtg cagccctgcag tttgtgcacg gcccgttccg ggaggaggag tgctcgcc 360  
tctgtgacat cggctacggg ggagcccaagt gtgcacccaa ggtgcattt cccttccaca 420  
cctgtgacct gaggatgcac ggagactgtc tcatgggtc ttcagaggca gacacctatt 480  
acagaagcca ggatgaaatg tcagaggaat ggcgggtgc tggcccaatg caagagccag 540  
aaagtgcagg acatcctcgc ctcttatctg ggcgcctgg agaccaccaa cgaggtgact 600  
gacagtgtact ttgagaccag gaacttctgg atngggctca cctacaagac cgccaaggac 660  
tccttncgtc gggccacagg ggagcaccag 690

<210> 322

<211> 104

<212> DNA

<213> Homo sapiens

<400> 322

gtcgcaagcc ggagcaccac catgttagcct ttcccgaagt accggacctt ctcctctcc 60  
acgctcacat cacggacatc atggagcagg accaccaccc ggtc 104

<210> 323

<211> 118

<212> DNA

<213> Homo sapiens

<400> 323

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actagtgaat gaagaacgaa cactggaagt agaaatagag cctgggtga gagacgga 118

<210> 324  
<211> 354  
<212> DNA  
<213> Homo sapiens

<400> 324  
tgctctccgg gagcttgaag aagaaactgg ctacaaaggg gacattgccg aatgttctcc 60  
agcggctgt atggaccagg gcttgtcaaa ctgtactata cacatcgta cagtcaccat 120  
taacggagat gatgccggaaa acgcaaggcc gaagccaaag ccagggatg gagagttgt 180  
ggaagtcat tctttaccca agaatgacct gctgcagaga cttgatgctc tggtagctga 240  
agaacatctc acagtggacg ccagggtcta ttccctacgt ctacgcgtga aacatgcaaa 300  
tgcaaagcca tttgaagtgc ccttcttcaa atttaagcc caaatatgac actg 354

<210> 325  
<211> 642  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc\_feature  
<222> (1)...(642)  
<223> n = A,T,C or G

<400> 325  
ncatgcttga atgggctcct ggtgagagat tgccccctgg tggtgaaaca atcgtgtgtg 60  
cccactgata ccaagaccaa taaaaagagac acagttaaac agcaatccat ctcatttcca 120  
ggcacttcaa taggtcgctg attggtcctt gcaccagcag tggtagtcgt acctatttca 180  
gagaggtctg aaattcaggt tcttagtttgc ccagggacag gccctacctt atatttttt 240  
ccatcttcat catccacttc tgcttacagt ttgctgctta caataactta atgatggatt 300  
gagttatctg ggtggctctt accatctgg gcagtggtgt tctgtctaac caaagggcat 360  
tggcctcaaa ccctgcattt ggtttagggg ctaacagagc tcctcagata atcttcacac 420  
acatgttaact gctggagatc ttattctatt atgaataaga aacgagaagt ttttccaaag 480  
tggtagtcag gatctgaagg ctgtcattca gataaccagg cttttccctt tggcttttag 540  
cccattcaga ctttgcaga gtcaagccaa ggattgctt ttgctacag ttttctgcca 600  
aatggcttag ttcctgagta cctggaaacc agagagaaag ag 642

<210> 326  
<211> 455  
<212> DNA  
<213> Homo sapiens

<400> 326  
tccgtgagga tgagcttgcgat gtccttcacc aggcaactgca ggggcacagt cacgtcaatc 60  
acettccacct ttcgtgttgc cctgtcttgc tcattgacaa acttccgttgc ccaggcatttgc 120  
acgtatgtgttgc ggcatttgc ttgttgcgttgc gctcaatttgc tccttcggac agattccgttgc 180  
atcagccggaa cagcggacttgc cgccttgc ttgttgcgttgc gcacatcggttgc ggcggcgctt 240  
tccctctgttgc ttcgttgcgttgc ttgttgcgttgc gctcaatttgc tccttcggac agattccgttgc 300  
cggtgcattgg caaaatgttgc cactagaggc cccacgggtgg catagaacat ggcgttggc 360  
agaagctggt ccgtcaagttgc aatagggaaag aagtatgttgc gactggccctt gttgagcttgc 420  
actttgagat aaacggccgttgc tggaaacttgc acgttgc 455

<210> 327  
<211> 321  
<212> DNA

<213> Homo sapiens

<400> 327

ttcaactgtga actcgcagtc ctgcgtgaac tcgcacagat gtgacagccc tgcgtcccttg 60  
ctctctgagt tctcttcaat gatgctgatg atgcagtcca cgatacgccg ctataactca 120  
aagccaccct cttccccag catggtaac aggaagttca taaggacggc gtgttgcga 180  
ggatatttct gacacaggc actgatggcc tggacaacca ccacccgtaa ttcatccgag 240  
atttctgaca tgaaggagga gatctgcttc atgaggcggt cgatgtgct ctcgtgccc 300  
gtcttaagga ggggtgtat g 321

<210> 328

<211> 476

<212> DNA

<213> Homo sapiens

<220>

<221> misc\_feature

<222> (1)...(476)

<223> n = A,T,C or G

<400> 328

tgcaggaggc gccatggggg ctgtgaatgg gatgcagccc catggtgtcc ctgataaaatc 60  
cagtgtgcag tctgtatggg tctgggtggg tgggtctac gggctggcag ctaccatgtat 120  
ccaagaggta atgcactcct tttccatct ctccaccatc tgtatccctgg ccmagaaaaaa 180  
cttcccttca aaccaaccaa aatttccctt caaaggcata accccaaatgc catccttggt 240  
ccggtctaataa aaaggctccc ccattttcc cctggatgc attcccgagc tccctggct 300  
tnccaggcgtt nctgtctgtg ggtcatagtt tatctccccc cacttgctgg gagctcccttg 360  
aaggccaaaga ctctactgcc tccatctatc cagtggaaat ggctttcag agggtgc当地 420  
gttagtatgt atgactgtca tctctccaa cagggcctga cttggssaggg cttcca 476

<210> 329

<211> 340

<212> DNA

<213> Homo sapiens

<400> 329

cgggggagat tgccagcacc ctgtatggaga gtgagatgtat ggagatcttg tcagtgttag 60  
ctaagggtga ccacagccct gtccacaagggt ctgtgtcagc ctgcctggac aaaggcgtgg 120  
aatatgggtatcccaaccc aaccaagatg gagatgtgggg ggggttgcctcc tggggccaaag 180  
gctcatgcac acgttaccta ttgtggcactg gagatgtgggg acggaaaggcgtt ctgtggctgg 240  
tgggtggctgg catgccaat actcttgcctt atcctcgctt gctgccttag gatgtccctct 300  
gttctgtatgt acggggccacgt ttcatgtcaca cagccctgt 340

<210> 330

<211> 277

<212> DNA

<213> Homo sapiens

<400> 330

tgtcaccatc acattgggtgc caaataccca gaagacatcg tagatgaaga gtccggccag 60  
caggatgtcag ccagtgtcga cattgtttagt gtgcaggagc tctactccat taaggggagaa 120  
ggccaggccca aaaagggtgt tggcaatcca gtgccttcctc agcaggatacc agacgccaac 180  
gtatgtgtc acggccaggc acaccaggc tttgggtgtca aattcataat tggatgtatc 240  
ctccctgttt tcccagaacc ctgtgtgaag agcagac 277

<210> 331  
<211> 136  
<212> DNA  
<213> Homo sapiens

<400> 331  
ttgctccca cctccccc ctgtcctctc ctgaggttct gccttacaat ggggacactg 60  
atacaaacca cacacacaat gaggatgaaa acagataaca gtaaaatga ctcacac 120  
ccggcgccc gtcga 136

<210> 332  
<211> 184  
<212> DNA  
<213> Homo sapiens

<400> 332  
ttgtgagata aacgcagata ctgcaatgca taaaacgct taaaatactc atcaggatg 60  
ttgctgatct tattttgtc taatgtttaga gttaaagag agacaggag accagaaggc 120  
agtctggcta tctgattgaa gctcaagtca aggtattcga gtgatttaag acctttaaa 180  
gcag 184

<210> 333  
<211> 384  
<212> DNA  
<213> Homo sapiens

<400> 333  
cgaaaaacct cgaggaattt ctcaaaagtgc tgggggtgaa tgttatgtc aggaagattt 60  
ctgtggctgc agcgtccaag ccagcagtgg agatcaaaca ggaggagac actttctaca 120  
tcaaaacctc caccaccgtc cgccaccacag agattaactt caagttggg gaggagttt 180  
aggagcagac tgtggatggg aggcctgtt agagccttgtt gaaatgggag agtgagaata 240  
aatggctgt tgacgagaat ctctgttggg gagaggcccc caagacctcg tggaccagag 300  
aactgaccaa cgatggggaa ctgatcctga ccatgacggc ggatgacgtt gtgtgcacca 360  
gggtctacgt ccgagagtga gccc 384

<210> 334  
<211> 169  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc\_feature  
<222> (1)...(169)  
<223> n = A,T,C or G

<400> 334  
cnacaaacag agcagacacc ctggatccgg tcctgtact ggccaggacg gctggaccgt 60  
aaaatttgaat ttccacttcc tgaccgccgc cagaagagat tgatccctc cactatcact 120  
agcaagatga acctctctga ggaggttgac ttggaaagact atgtngccc 169

<210> 335  
<211> 185  
<212> DNA  
<213> Homo sapiens

<400> 335  
ccaggtttgc agccccaggct gcacatcagg ggactgcctc gcaatacttc atgctgttgc 60  
tgctgactga tggtgctgtg acggatgtgg aagccacacq tgaggctgtg gtgcgtgcct 120  
cgaacctgcc catgtcagtg atcattgtgg gtgtgggtgg tgctgacttt gaggccatgg 180  
agcag 185

<210> 336  
<211> 358  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc\_feature  
<222> (1)...(358)  
<223> n = A,T,C or G

<400> 336  
ctgcccctgc cttacggcg ccaganacac acccaggatg gcattggccc caaacttgg 60  
tttgttctca gtcccatcca actccagcat caggttgccc agtttcttt gctccaccac 120  
agagagacct gagctgatga gggctggcgc gatgggtggag ttgatgtgg ccactgcctt 180  
caggacacct ttgcctaagt aacgctgttt gtctccatcc ctcagctcca gggcctcata 240  
gatgcccgta gaggctccac tggccactgc agccccggaaa agacctttgg cagtataagag 300  
atccacactcc actgtggggt tcccgcgaaa gtccaggatc tcccgggccc agatcttc 358

<210> 337  
<211> 271  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc\_feature  
<222> (1)...(271)  
<223> n = A,T,C or G

<400> 337  
cacaaagcca ccagccnggg aaatcagaat ttacttgatg caactgactt gtaatagcca 60  
gaaatcctgc ccagcatggg attcagaacc tggtctgcaa ccaaattccac cgtcaaaagtt 120  
catacaggat aaaacaaatt caattgcctt ttccacatca atagcatcaa gcttccccaa 180  
caaagccaaa gttgccaccc cacaaaaaaga gaatcttgg tcaatttctc cctactttat 240  
aaaagtagat tttcacatc ccatgaagca g 271

<210> 338  
<211> 326  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc\_feature  
<222> (1)...(326)  
<223> n = A,T,C or G

<400> 338  
ctgtgctccc gactngnnca tctcaggtaa caccgactgc actggggcg 60  
ggggaaaggct ccacggggca gggataacatc tcgaggccag tcatctctg gaggcagccc 120  
aatcaggtaa aagatttgc ccaactggtc ggcttcagag ttccacaga agagaggctt 180

tcgacgaaac atctctgcaa agatacagcc aacactccac atgtccacag gtgttgata 240  
tgtggactgc agaagaacct cgggagctcg gtaccagagt gtaacaacca cgggtgtaag 300  
tgccatctgg tagctgtaga ttctgg 326

<210> 339  
<211> 260  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc\_feature  
<222> (1)...(260)  
<223> n = A,T,C or G

<400> 339  
ttcaccttag gactcatttc gtgcctttt tgacttcaa gcaaagnct tcanggtctn 60  
caaggacgnc acatttccac ttgcgaatgn nctcanggct catcttgaag aanaagnanc 120  
ccaagtgcgtg gatcccagac tccccggtaa ctttgcgggt aagagctcat ccagtttatg 180  
ctttaggacg tccanctact cgggggagct ggaagcctgc gtggatgcgg ccctgctgga 240  
cctcgccgc gaccacgcta 260

<210> 340  
<211> 220  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc\_feature  
<222> (1)...(220)  
<223> n = A,T,C or G

<400> 340  
ctggaagccc ggctnggnct ggcagcggaa ggagccaggg aggttacgcg agcgggtgtg 60  
cgacttagcgg tagcggcaact cgtctatgtc cacacactcg ggcccgatct tgccgttaacc 120  
atcagggcag gtgcactgtat aggagccagg caagttatgg cagtcctggc tggggcgaca 180  
gtcgtgcagg gcctggcac actcgtccac atccacacag 220

<210> 341  
<211> 384  
<212> DNA  
<213> Homo sapiens

<400> 341  
ctgctaccag gggagcggaga gctgactata ccagcctcggt ctaatgtatt ctacgcccatt 60  
gatggagctt cacacgattt cctcctgcgg cagcggcgaa ggtccctac tgctacacccg 120  
ggcgtcacca gtggcccgtc tgccctcaggaa actcctccga gtgagggagg agggggctcc 180  
tttcccaggaa tcaaggccac agggaggaag attgcacggg cactgttctg aggaggaagc 240  
cccgtggct tacagaagtc atgggttca taccagatgt gggtagccat cctgaatgg 300  
ggcaattata tcacatttag acagaaaattc agaaaggag ccagccaccc tggggcagtg 360  
aagtgccact ggttaccag acag 384

<210> 342  
<211> 245  
<212> DNA  
<213> Homo sapiens

<400> 342  
ctggctaagc tcatacattgt tactggtggg caccatgttc ttgaagcttc aggcaaggca 60  
tgtaaccaac aagaatgacc ccaagtccat caactctcgat gtcttcattt gaaacctcaa 120  
cacagctctg gtgaagaaaat cagatgtgga gaccatcttc tctaagtatg gccgtgtggc 180  
cggctgttct gtgcacaagg gctatgcctt tgttcagttac tccaatgagc gccatgcccg 240  
ggcag 245

<210> 343  
<211> 611  
<212> DNA  
<213> Homo sapiens

<400> 343  
ccccaaaaat caagatttaa ttttttattt tgcaactgaaa aactaatcat aactgttaat 60  
tctcagccat ctttgaagct tggaaaaga gtcatttggta ttttgtaaac gtttagcagac 120  
tttcctgcca gtgtcagaaa atcctattta tgaatcctgt cggttattctt tggttatctga 180  
aaaaaatacc aaatagtacc atacatgagt tatttctaaag tttgaaaaat aaaaagaaaat 240  
tgcacatcacac taattacaaa atacaaggatc tggaaaaaaat ttttttctt attttaaaac 300  
tttttttaac taataatggc tttgaaaagaa gaggcttaat ttgggggtgg taactaaaat 360  
caaaaagaaaat gattgacttg agggctctgt tttggtaaga atacatcatt agcttaaata 420  
agcagcagaa ggtagttttt aattatgttag ctctgtttaa tattaagtgt tttttgtctg 480  
ttttacctca atttgaacag ataagttgc ctgcacatgtc gacatgcctc agaaccatga 540  
atagccccgta ctagatcttg ggaacatgga tcttagagtc ctttggaaaata agttcttata 600  
taaataacccc c 611

<210> 344  
<211> 311  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc\_feature  
<222> (1)...(311)  
<223> n = A,T,C or G

<400> 344  
nctcgaaaaaa gcccggaca gcagaaggcag acaccccttccag tgaacttagca aagaaaaagca 60  
aagaagtatt cagaaaaagag atgtcccagt tcatacgatcgtccat gtgcctgttgcac ccttaccgg 120  
aacctgactg caaaatgggaa agaatttacca caactgaaat cttttaacat ctggctcgca 180  
agctgactca cggtttatg aataaggagc tgaagtactg taagaatcctt gaggacctgg 240  
agtgcataatgtt gaaatgtaaa cacaaaacca aggantacat taanaagtac atgcannan 300  
tttggggctt g 311

<210> 345  
<211> 201  
<212> DNA  
<213> Homo sapiens

<400> 345  
cacacggtca tccccactgc caacctggag gcccaggccc tggaaagga gcccggcagc 60  
aatgtcaatcgatc tgagtgtggat tgctgagtgt gtggccatgg tcaggacatc tctcaggatc 120  
ttctactccc gaaggattgtatc catcaccctgt tggcactgtca agtgcttcca caagctggcc 180  
tctgcctatgtt gggccaggca g 201

<210> 346  
<211> 370  
<212> DNA  
<213> Homo sapiens

<400> 346  
ctgctccagg gcgtgggtgtg cttcgtggc ctctgccttc tccaggaggac caggctgtgt 60  
tctttcaga atgttcttgg a cagcagt gaggcggtg atgcgttgg a agggcagaat 120  
cagaaaaggac ttgagggaaa ggcgcgtggca gacggggtcg ctctccagct tctccaagac 180  
ctcccgaaaa ttgctgttgc tattcatcg gctctggaaag gtgcgttccct gataggtctg 240  
tttggtgaca taaggcaggt agaccggcg gaagtctggg gcgtggttca ggactacgtc 300  
acataacttgg aaggagaaga tattgttctc aaagttctt tccaggtctg aaaggaacgt 360  
ggcgctgacg 370

<210> 347  
<211> 416  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc\_feature  
<222> (1)...(416)  
<223> n = A,T,C or G

<400> 347  
ctgttgtgct gtgtatggac gtgggcttta ccatgagtaa ctccatttc ggtatagaat 60  
ccccatttga acaagcaaag aagggtataa ccatgtttgt acagcgacag gtgtttgctg 120  
agaacaagga tgagattgct ttagtcctgt ttggtacaga tggcactgac aatcccctt 180  
ctgggtggggta tcagtatcg aacatcacag tgcacagaca tctgtatgcta ccagatttt 240  
atttgcttgg a gacattgaa agcaaaatcc aaccagggttc tcaacaggct gacttccctg 300  
atgcactaat cgtgagcatg gatgttattt aacatgaaac aataggaaag aagtttggag 360  
aaggaggata ttgaaatatt cactgaccc aagcagcccg attcagcaaa agtcan 416

<210> 348  
<211> 351  
<212> DNA  
<213> Homo sapiens

<400> 348  
gtacaggaga ggtatggcagg tgcagagcgg gcactgagct ctgcagggtga aagggtctgg 60  
cagttggatg ctctccttgg a ggctctgaaa ttgaaacggg caggaaatag tctggcagcc 120  
tctacacgac aagaaacggc aggcaatgcc caggacgacag caggagacag atgccttc 180  
cttgcctcaa ctgcaaaagag gctgttccctc ctcttcaact aatcccttc agcacagacc 240  
cttacgggt gtcaggctgg gggacagttaa ggtctttccc ttccacaaag gccatatctc 300  
aggctgtctc agtggggggaa aaccttggac aataccggg ctttcttggg c 351

<210> 349  
<211> 207  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc\_feature  
<222> (1)...(207)  
<223> n = A,T,C or G

<400> 349  
nccgggacat ctccaccctc aacagtggca agaagagccct ggagactgaa cacaaggcct 60  
tgaccagtga gattgcactg ctgcagtcctc ggctgaagac agagggctct gatctgtcg 120  
acagagttag cgaaaatgcag aagctggatg cacaggtcaa ggagctggtg ctgaagtcgg 180  
cggtggaggc tgagcgcctg gtggctg 207

<210> 350  
<211> 323  
<212> DNA  
<213> Homo sapiens

<400> 350  
ccatacaggg ctgttgccta ggccttagag gtcattcctc gtaccctgat ccagaactgt 60  
ggggccagca ccatccgtct acttacctcc cttcgggcca agcacacccca ggagaactgt 120  
gagacatggg gtgttaaatgg tgagacgggt actttggtgg acatgaagga actgggcata 180  
tgggagccat tggctgtgaa gctgcagact tataagacag cagttggagac ggcagttctg 240  
ctactgcgaa ttgatgacat cgtttcaggc cacgaaaaga aaggcgatga ccagagccgg 300  
caaggcggggg ctcctgatgc tgg 323

<210> 351  
<211> 353  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc\_feature  
<222> (1)...(353)  
<223> n = A,T,C or G

<400> 351  
cgccgcatcc cntggccctt tccantccct tttcctttnt cnnggaacgt gtatgcgggt 60  
tgtttttgtt ttgttaggggtt tttttccctc tccacccctc cctgtctctt ttgctccatg 120  
ttgtccgttt ctgtgggggtt aggtttatgt ttttaatcat ctgaggtcac gtctatttcc 180  
tccggactcg cctgcttggt ggcgattctc caccggtaa tatggtgcgt ccctttttcc 240  
ttttgttgcg aatctgagcc ttcttcctcc agcttctgcc ttttgaactt tgttcttcgg 300  
ttctgaaacc atactttac ctgagttcc gtgaggctga ggctgtgtc caa 353

<210> 352  
<211> 467  
<212> DNA  
<213> Homo sapiens

<400> 352  
ctgcccacac tgatcacttg cgagatgtcc ttagggtaca agaacaggaa ttgaagtctg 60  
aatttgagca gaacctgtct gagaaactct ctgaacaaga attacaattt cgtcgctctca 120  
gtcaagagca agttgacaac ttactctgg atataaatac tgccttatgcc agactcagag 180  
gaatcgaaca ggctgttcag agccatgcag ttgctgaaga ggaagccaga aaagcccacc 240  
aactctggct ttcaagtggag gcattaaagt acagcatgaa gacccatct gcagaaacac 300  
ctactatccc gctgggtagt gcagttgagg ccatcaaagc caactgtct gataatgaat 360  
tcacccaagc tttaaccgca gctatccctc cagagtccct gaccctgtggg gtgtacagt 420  
aagagaccct tagagcccgtagt ttctatgctg ttcaaaaact ggcccgaa 467

<210> 353  
<211> 350

<212> DNA  
<213> Homo sapiens

<400> 353  
ctgctgcagc cacagtagtt cctccatgg tgggtggccc tcctggtcct gctggccca 60  
gaaatctgc cccaccagga acagccccctg gaaaacggcc ccgtcctcta ccaccttgc 120  
gaaatgcgc acggaaactg ctcctggag gaccagett accttccca gacatttgc 180  
ctgattgtgt agtttctg gactgcatt caaattgact cagaactgt ttattgcatt 240  
gagttacaac aggattctga ccatgaagtt ctcttttagg taacagatcc attaacttt 300  
ttgaagatgc ttcagatcca acaccaacaa gggcaaacc ctttgactgg 350

<210> 354  
<211> 351  
<212> DNA  
<213> Homo sapiens

<400> 354  
attttagatga gatctgaggc atggagacat ggagacagta tacagactcc tagatttaag 60  
tttttagttt tttgttttc taatcacca ttcttatata caatgtatat tttagactcg 120  
agcagatgt catcttcattt ttaagtgcatt ccttttgcact gagtatggca ggatttagagg 180  
aatggcagt atagatcaat gtcttttct gtaaaagtata gaaaaaaacca gagagaaaaa 240  
aaagagctga caatttggaaag gtagtagaaa attgacgata atttcttctt aacaaataat 300  
atgttatata acaaggaggc tagtcaacca gatttttattt gttgaggcg a 351

<210> 355  
<211> 308  
<212> DNA  
<213> Homo sapiens

<400> 355  
ttttggcgca agttttacag attttattaa agtcgaagct attggctttg gaagatgaaa 60  
atgcaaatgt tgatgagggtg gaatttgcggc cagatacctt aataaaaatta tatcttgggtt 120  
ataaaaaataa gaaattaagg gtttacatca atgtgcattt gaaaacccgaa cagaagcagg 180  
aacaagaaaac cacacacaaa aacatcgagg aagaccgcaa actactgatt cagggcggcca 240  
tcgtgagaat catgaagatg aggaagggttc taaaacacca gcagttactt ggcgaggccc 300  
tcactcag 308

<210> 356  
<211> 207  
<212> DNA  
<213> Homo sapiens

<400> 356  
ctgtcccaag tgctccaga aggcaggatt ctgaagacca ctccagcgat atgttcaact 60  
atgaagaata ctgcaccgccc aacgcgtca ctgggcctt ccgtgcattt ccgtgcattt 120  
ggtaacttgcgat gtttgcggagg aactcctgcataaacttcat ctatggaggc tgccggggca 180  
ataagaacacat ctaccgcgtt gaggagg 207

<210> 357  
<211> 188  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc\_feature

<222> (1)...(188)  
<223> n = A,T,C or G

<400> 357

tcgaccacgc cctcgtagcg catgngctnc aggacgatgc tcagagtgtat gaacaccccg 60  
gtgcggccca cgccagact gcagtgcacc gtgataggcc catcctgtcc aaactgctcc 120  
tttgttcttat gcacctgccc gatgaagtca atgaatccct cgccctgttcc gggcacgccc 180  
tgctctgg 188

<210> 358

<211> 291  
<212> DNA  
<213> Homo sapiens

<400> 358

ctggggagcat cggcaagcta ctgccttaaa atccgatctc cccgagtgc caatttctgt 60  
cccttttaag ggttcacaac actaaagatt tcacatgaaa gggttgtat tgatttgagc 120  
aggcaggccgg tacgtgcacag gggctgcattt caccgggtt cagagagaaa cagaacaggg 180  
cagggaattt cacaatgttc ttctatacaa tggctggat ctatgaaataa catcagttc 240  
taagttatgg gttgatTTT aactactggg tttaggccag gcaggcccag g 291

<210> 359

<211> 117  
<212> DNA  
<213> Homo sapiens

<220>

<221> misc\_feature  
<222> (1)...(117)  
<223> n = A,T,C or G

<400> 359

gccaccacac tccagcctgg gcaatacagc aagactgtct caaaaaaaaaaaaaaaa 60  
ccccaaaaaaaaaa ctcaaaaang taatgaatga tacccaangn gcctttctta gaaaaag 117

<210> 360

<211> 394  
<212> DNA  
<213> Homo sapiens

<400> 360

ctgttcctct ggggtggtcc agttcttagag tgggagaaaag ggagtcaaggc gcattggaa 60  
tcgtggttcc agtctggttt cagaatctgc acatttgc caagtttttc cctgtttgg 120  
aagtttgc cagtttccc gggcacacca cttttgtcc caagtgtctg ccggtcgacc 180  
aatctgcctt ccacacattt accaaggccag acccggtca cccagctcgaa ggatcccagg 240  
ttgaagatgt gcccccttgg gcccctggaaa gaccaatcac tggacttctt cccttgagag 300  
tcaagaggta cccgtgatcc tgcctgcacc ttatcatga tctgcagtga ttctgc 360  
tcaagagaaa ctctgcaggc cactccctg ttcc 394

<210> 361

<211> 394  
<212> DNA  
<213> Homo sapiens

<220>

<221> misc\_feature  
<222> (1)...(394)  
<223> n = A,T,C or G

<400> 361

ctggcgatg agcaccgggc atattttntt natggatgag gtctggcacc ctgagcagtc 60  
cagcgaggac ttggcttag ttgagcaatt tggcttagag gatagtatgc agcacgggtc 120  
tgagtctgtg ggatagctgc catgaagtaa cctgaaggag gtgctggctg gtaggggtt 180  
attacaggtt tggaaacagc tcgtacactt gccattctt gcataatactg gttagtgagg 240  
tgagcctgac gcttctttt ggcgtgagct aaagctacat acaatggctt tgtggaccc 300  
ggccgcgacc acgctaagcc gaattccagc acactggcg ccgttactag tggatccgag 360  
ctcggtacca agcttggcgt aatcatggtc atag 394

<210> 362

<211> 268

<212> DNA

<213> Homo sapiens

<400> 362

ctgcgcgttg accagtcaagc ttccgggtgt gactggagca gggcttgcg tcttcttcag 60  
agtcactttg caggggttgg tgaagctgtt cccatccatg tacagctccc agtctactga 120  
tgtttaagga tggtctcggtt ggttaggccc actagaataa actgagtcca atacctctac 180  
acagttatgtt ttaactgggc tctctgacac cgggaggaag gtggcgggtt ttaggtgtt 240  
caaacttcaa tggtatgcg gggatgtt 268

<210> 363

<211> 323

<212> DNA

<213> Homo sapiens

<400> 363

ccttgacctt ttcaagcaagt gggaaagggtgt aatccgtctc cacagacaag gccaggactc 60  
gtttgtaccc gttgtatgata gaatggggta ctgtatcaac agttgggtag ccaatctgca 120  
gacagacact ggcaacattt cgacacccct ccaggaagcg agaatgcaga gtttcctctg 180  
tgatatatcaag cacttcaggg ttgttagatgc tgccattgtc gaacacctgc tggatgacca 240  
gccccaaagga gaagggggag atgttgagca tgttcagcag cgtggcttcg ctggctccca 300  
ctttgtctcc agtcttgatc aga 323

<210> 364

<211> 393

<212> DNA

<213> Homo sapiens

<220>

<221> misc\_feature

<222> (1)...(393)

<223> n = A,T,C or G

<400> 364

ccaagctctc catcgcccc gtgcgcagnng gctactgggg gaacaagatc ggcaagcccc 60  
acactgtccc ttgcaagggtg acaggccgtt gccggctctgt gctggtacgc ctcatcactg 120  
caccctgggg cactgcacatc gtctccgcac ctgtgcctaa gaagctgttc atgatggctg 180  
gcacatcgatgtt ctgtctacacc tcagccccggg gctgcactgc caccctgggc aacttcgcca 240  
aggccacccctt tgatgccatt tctaaagaccc acagctaccc tggatggaccc 300  
agactgtatt caccaagtctt cccttatcagg agttcactga ccaccccgac ctctggaaagg 360

ccagagtctc cgtgcagcgg actcaggctc cag 393  
<210> 365  
<211> 371  
<212> DNA  
<213> Homo sapiens  
  
<400> 365  
cctcctcaga gcggtagctg ttcttattgc cccgcagcc tccatagatg aagttattgc 60  
aggagttctt ctccacgtca aagtaccagc gtggaaagga tgacacggaa gccccagtga 120  
ctgcgttgc ggtcagttat tttcatatgt tgaacatatac gttggatgg ttttcagaat 180  
cctgccttctt gggagactt ggacacagg aatccgtgc attccgtctg gtggacctcg 240  
gccgcgacca cgctaagccg aattccagca cactggcgcg cgttactatgt ggatccgagc 300  
tcggtagccaa gcttggcgta atcatggtca tagctgtttc ctgtgtgaaa ttgttatccg 360  
ctcacaattc c 371  
  
<210> 366  
<211> 393  
<212> DNA  
<213> Homo sapiens  
  
<400> 366  
atttcttgcg agatgggagc tctttggtga agactccccc cggaaaaagt tttttggctt 60  
cttcttcagg gatgggttggaa aggaccatca cactatcccc atccttccaa tcaactgggg 120  
tggcaaccctt ttttctgtc gtcagctggaa gagagatgac taccctgaga atctcatcaa 180  
agttcctgcc agtggtagct ggttagagga tagacagctt cagttctta tcaggaccaa 240  
aaacaaaacac cacacggact gccacaggca tgcccttttc atccttctct gctggatcca 300  
gcatgccccaa caggatggca agtccccatc tccttatcatc gatgatggaa aaaggtaact 360  
tttctgtggg ctcttcacaa ttgtaagcat tga 393  
  
<210> 367  
<211> 327  
<212> DNA  
<213> Homo sapiens  
  
<220>  
<221> misc\_feature  
<222> (1)...(327)  
<223> n = A,T,C or G  
  
<400> 367  
ccagctctgt ctcataacttg actctaaagt cttnagcagc aagacgggca ttgnnaatct 60  
gcagaacgat gcgggcatttgc tccacagtat ttgcgaagat ctgagccctc aggtcctcg 120  
tgatcttggaa gtaatggctc cagtctctga cctggggctc cttttctcc aagtgtccc 180  
ggattttgtt ctccagccctc cggttctcgg tctccaggtt cctcaactctg tccaggttaag 240  
aggccagggcg gtcgttcagg ctttgcattgg tctccttctc gttctggatg cctccatcc 300  
ctgccagacc cccggctatc ccgggtgg 327  
  
<210> 368  
<211> 306  
<212> DNA  
<213> Homo sapiens  
  
<220>  
<221> misc\_feature

<222> (1)...(306)  
<223> n = A,T,C or G

<400> 368

ctggagaagg acttcagcag tttnaagaag tactgccaag tcatccgtgt cattgccac 60  
acccagatgc gcctgttcc tctgcgccag aagaaggccc acctgatgga gatccagggtg 120  
aacggaggca ctgtgccga gaagctggac tgggcccccg agaggcttga gcagcaggtta 180  
cctgtgaacc aagttttgg gcaggatgag atgatcgacg tcatcggtt gaccaaggc 240  
aaaggctaca aagggtcac cagtcgttgg cacaccaaga agctgccccg caagacccac 300  
cgagga 368

<210> 369

<211> 394

<212> DNA

<213> Homo sapiens

<400> 369

tcgaccacca ccggaacacg gagagctggg ccagcattgg cacttgatag gatttccgt 60  
cggctgccac gaaagtgcgt ttctttgtgt tctcgggtt gAACCGTGTATTCACAGAC 120  
ccttgaataa cactgcgtt acgaggacca gtctggtag cacaccatca ataagatctg 180  
gggacacgacg attgtcaatc atatccctgg tttcattttt aaccatgca ttgatggaaat 240  
cacaggcaga ggctggatcc tcaaagttca cattccggac ctcacactgg aacacatctt 300  
tgttccttgtt aacaaaaggc acttcaattt cagaggcatt cttacaaaac acggcgtag 360  
ccactgtcac aatgtctta ttcttcttgg agac 394

<210> 370

<211> 653

<212> DNA

<213> Homo sapiens

<400> 370

ccaccacacc caattcccttg ctggtatcat ggcagccgcc acgtgccagg attaccggct 60  
acatcatcaa gtatgagaag cctgggtctc ctcccagaga agtggccct cggcccccgc 120  
ctggtgtcac agaggctact attactggcc tggaaaccggg aacccaatat acaatttatg 180  
tcattgcctt gaagaataat cagaagagcg agccctgtat tggaaaggaaa aagacagacg 240  
agttcccca actggtaacc ctccacacc ccaatctca tggaccagag atcttggatg 300  
ttccttccac agttcaaaag acccccttctg tcacccaccc tgggtatgac actggaaatg 360  
gtattcaget tcctggact tctggtcagec aaccctgtt tggcaacaa atgatctttg 420  
aggaacatgg ttttaggcgg accacaccgc ccacaacggc cacccttata aggcataggg 480  
caagaccata cccgccgaat gtaggacaag aagctcttc tcagacaacc atctcatggg 540  
ccccatttcca ggacacttct gagtacatca tttcatgtca tcctgttgc actgtatgaag 600  
aacccttaca gttcagggtt cctggactt ctaccagtgc cactctgaca gga 653

<210> 371

<211> 268

<212> DNA

<213> Homo sapiens

<400> 371

ctgcccagcc cccatggcg agtttggaaa ggtgtgcagc aatgacaaca agaccttcga 60  
ctcttcttc cacttctttg ccacaaagtg caccctggag ggcaccaaga agggccacaa 120  
gctccacctg gactacatcg ggccttgcaa atacatcccc cttgcctgg actctgagct 180  
gaccgaattc cccctgcgc tgcgggactg gctcaagaac gtcctggta ccctgtatga 240  
gagggtatgag gacaacaacc ttctgact 268

<210> 372  
<211> 392  
<212> DNA  
<213> Homo sapiens

<400> 372  
gctggtgccc ctggtaacg tggacacctt ggattggcag gggccccagg acttagaggt 60  
ggaactggtc cccctggtcc cgaaggagga aagggtgcgt ctggcttcc tgggccacct 120  
ggtgtgtgtc gtactcttgg tctgcaagga atgcctggag aaagaggagg tcttggaaagt 180  
cctggtccaa agggtgacaa gggtaacca ggcggtccag gtgtgtatgg tgtcccagg 240  
aaagatggcc caagggttcc tactggtctt attggtcctc ctggcccagc tggccagcct 300  
ggagataaagg gtgaagggtgg tgcccccgga cttccaggtt tagctggacc tcgtggtagc 360  
ctggtgaga gaggtgaaac ctggccgcg ac 392

<210> 373  
<211> 388  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc\_feature  
<222> (1)...(388)  
<223> n = A,T,C or G

<400> 373  
ccaagcgctc agatcgccaa ggggcacccan ttttgatctg cccagtgcac agccccacaa 60  
ccaggtcagc gatgaaggta tcttcagtc ccccccgaacg atgagacacc atgacgcccc 120  
aaccattggc ctggggccagc ttgcacgcct gaagagactc ggtcacggag ccaatctgg 180  
tgacttttag caggaggcag ttgcaggact ttcgttccac ggccttggcg atcctcttg 240  
ggttggtcac tgttagatca tcccccaacta cctggattcc tgcactggct gtgaacttct 300  
gccaagctcc ccagtcatcc tggtaaaagg gatcttcgat agacaccact gggtagtcct 360  
tgatgaaggta cttgtacagg tcagccag 388

<210> 374  
<211> 393  
<212> DNA  
<213> Homo sapiens

<400> 374  
ctgacgaccg cgtgaacccc tgcattgggg gtgtcatctt cttccatgag acactctacc 60  
agaaggcgga tgatggcggt ccctttcccc aagttatcaa atccaagggc ggtgttgg 120  
gcatcaaggt agacaagggc ttggttcccc tggcaggagc aaatggcgag actaccaccc 180  
aagggttggaa tgggtgtctt gaggcgtgtc cccagtacaa gaaggacggc gctgacttcg 240  
ccaagtggcg ttgtgtgtc aagattgggg aacacacccc ctcagccctc gccatcatgg 300  
aaaatgccaa tggctggcc cgttatgcca gtatctgcca gcagaatggc attgtgccc 360  
tcgtggagcc tgagatctc cctgtatgggg acc 393

<210> 375  
<211> 394  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc\_feature  
<222> (1)...(394)

<223> n = A,T,C or G

<400> 375

ccacaaaatgg cgtggtccat gtcatcaccn ttnttctgca gcctccagcc aacagacctc 60  
aggaaagagg ggatgaactt gcagactctg cgcttgagat cttaaacaacaa gcatcagcgt 120  
tttccagggc ttcccagagg tctgtgcac tagccccgt ctatcaaagg ttattagaga 180  
ggatgaagca ttagcttcaa gcactacagg aggaatgcac cacggcagct ctccgccaat 240  
ttctctcaga ttcccacaga gactgtttga atgtttcaa aaccaagtat cacacttaa 300  
tgtacatggg ccgcaccata atgagatgtg agccttgac atgtggggga ggagggagag 360  
agatgtactt tttaaatcat gttcccccta aaca 394

<210> 376

<211> 392

<212> DNA

<213> Homo sapiens

<220>

<221> misc\_feature

<222> (1)...(392)

<223> n = A,T,C or G

<400> 376

ctgcccagcc cccatggcg agtttgattt ggtgtcagc aatgacaaca agacccatcg 60  
ctcttcctgc cacttcttg ccacaaaatgt caccctggag ggcaccaaga agggccacaa 120  
gctccacctg gactacatcg ggccttgc aaatcatcccc cttgcctgg actctgagct 180  
gaccgaattc cccctgcgc tgccggactg gctcaagaac gtcctggta ccctgttatga 240  
gagggatgag gacaacaacc ttctgactga gaagcagaag ctgccccgtg agaagatcca 300  
tgagaatgag aagccctgg aggcaggaga ccacccctg gagctgtgg cccgggactt 360  
cgagaagaac tataacatgt acatcttccc tg 392

<210> 377

<211> 292

<212> DNA

<213> Homo sapiens

<400> 377

caatgtttga tgcttaaccc ccccaatttc tgtgagatgg atggccagtg caagcgtgac 60  
ttgaagtgtt gcatgggcat gtgtggaaa tcctgcgtt cccctgtgaa agcttgcattt 120  
ctgccatatg gaggaggctc tggagtcctg ctctgtgtgg tccaggtcct ttccaccctg 180  
agactggct ccaccactga tatcctcctt tggggaaagg cttggcacac agcaggctt 240  
caagaagtgc cagttgatca atgaataaat aaacgagctt atttctcttt gc 292

<210> 378

<211> 395

<212> DNA

<213> Homo sapiens

<400> 378

ctgctgcttc agcgaagggt ttctggcata tccaaatgata aggctgccaa agactgttcc 60  
aataccagca ccagaaccag ccactcctac tggatgcacca cctgcacccaa taaaatttgc 120  
agcagttatca atgtctctgc tgattgcact ggtctgaaac tccctttggta ttagctgaga 180  
cacaccattc tggccctga tttcctaag atagaactcc aactctttgc cctctagcac 240  
atagccatct gctcgccac actgtcccgg ctttgaagcg atgcacgcacaa gaagcttgcc 300  
ctgctggAAC tgctctcAA ggagactgtt gattttggca ttcttttcc tttcatcata 360  
tttcttctgtt attttttaga tcgtttttttt tttaa 395

<210> 379  
<211> 223  
<212> DNA  
<213> Homo sapiens

<400> 379  
ccagataaa tgctggcga atggctgtgg gaagggtgtcc tgcgtcaactc ccaatttctg 60  
agctccagcc accaccaggc tgagcagtga ggagagaaag tttctgcctg gccctgcata 120  
tggttccagc ccacctgccc tccccctttt cgggactctg tattccctct tgggctgacc 180  
acagcttctc cctttccaa ccaataaaagt aaccactttc agc 223

<210> 380  
<211> 317  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc\_feature  
<222> (1)...(317)  
<223> n = A,T,C or G

<400> 380  
tcgaccacag tattccaacc ctccctgtgcn tngagaagtg atggagggtg ctgacaaccca 60  
gggtgcagga gaacaaggta gaccagttag gcagaatatg tatcgggat atagaccacg 120  
attccgcagg ggccttcctc gccaaagaca gccttagagag gacggcaatg aagaagataa 180  
agaaaatcaa ggagatgaga cccaaaggta gcagccacct caacgtcggt accgcccaca 240  
cttcaattac cgacgcagac gcccagaaaa ccctaaacca caagatggca aagagacaaa 300  
agcagccgat ccaccag 317

<210> 381  
<211> 392  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc\_feature  
<222> (1)...(392)  
<223> n = A,T,C or G

<400> 381  
cctgaaggaa gagctggcct acctgaatnn naaccatgag gaggaaatca gtacgctgag 60  
gggccaagtg ggagggccagg tcagtgtgg ggtggattcc gctccggca cccatctcgc 120  
caagatccctg agtgcacatgc gaagccaata tgaggtcatg gccgagcaga accggaagga 180  
tgctgaagcc tggttccca gccggactga agaatttaaac cgggagggtcg ctggccacac 240  
ggagcagctc cagatgagca ggtccggagg tactgacctg cggcgcaccc ttcaagggtct 300  
tgagatttagt ctgcgtcac agacccctggc cggcaccacg ctaagccgaa ttccagcaca 360  
ctggcggccg ttactagtgg atccgagctc gg 392

<210> 382  
<211> 234  
<212> DNA  
<213> Homo sapiens

<400> 382

cctcgatgtc taaaatgagcg tggtaaaagga tggtgccctgc tggggtctcg tagataacctc 60  
gggacttcat tccaatgaag cggttctcca cgtatcaat acggcccacg ccatgcttgc 120  
ccgcgacttc gttcaggtagt atgaagagct ccaaggaggt ctgggtgggtg gtgccatcct 180  
tgacgttgtt cacccatcaca gggaccctt ttttgaactc catctccaga atgt 234

<210> 383  
<211> 396  
<212> DNA  
<213> Homo sapiens

<220>  
<221> misc\_feature  
<222> (1)...(396)  
<223> n = A,T,C or G

<400> 383  
ccttgacctt ttcaagcaagt gggaaagggtgt ttcccgcttc cacagacaag gccaggactc 60  
gtttgnaccc gttgatgata gaatggggta ctgatgcaac agttgggttag ccaatctgca 120  
gacagacaact ggcaaacattt cgacacaccca ggatttcaat ggtgccccctg gagatttttag 180  
tggtgataacc taaaaggctgg aaaaaggagg tcttctcggtt cccgagacca gtgttctggg 240  
ctggcacagt gacttcacat ggggcaatgg caccagcacg ggcagcagac ctgccccggc 300  
ggccgctcga aagccgaatt ccacgacact ggccggccgtt actatgtggat ccgagctcgg 360  
taccaagctt ggctaatca tggcatagc tgtttc 396

<210> 384  
<211> 396  
<212> DNA  
<213> Homo sapiens

<400> 384  
gctgaatagg cacagagggc acctgtacac cttcagacca gtctgcaacc tcaggctgag 60  
tagcagtgaa ctcaggagcg ggagcagtcc attcaccctt aaattctcc ttggtcactg 120  
ccttctcagc agcagccctgc tcttctttt caatctcttc aggatctctg tagaagtaca 180  
gatcaggcat gacctccat ggggtttcac gggaaatgtt gccacgcattt cgcacaaactt 240  
cccgagccag catccaccac atcaaaccca ctgagtgagc tcccttggat ttgcattggg 300  
tggcaatgtc cacatagcgc agaggagaat ctgttttaca cagcgcataatg ttaggttaggt 360  
taacataaga tgcctccgtt agaggctggt ggtcag 396

<210> 385  
<211> 2943  
<212> DNA  
<213> Homo sapiens

<400> 385  
cagccaccgg agtggatgcc atctgcaccc accggccctga ccccacaggc cctgggctgg 60  
acagagagca gctgttattt gagctgagcc agctgaccca cagcatcaact gagctgggc 120  
cctacaccctt ggacaggggac agtctctatg tcaatggttt cacacagcgg agtctgtgc 180  
ccaccactag cattccctggg acccccccacag tggacccctggg aacatctggg actccagttt 240  
ctaaaacctgg tccctccgtt gccagccctc tccctgggtt attcactctc aacttccacca 300  
tcaccaacacctt gcggttatgag gagaacatgc agcaccctgg ctccaggaag ttcaacacca 360  
cgaggaggggtt cttcaggggc ctggccctgtt ttcaagagca ccagtgttgg ccctctgtac 420  
tctggctgca gactgacttt gctcaggccctt gaaaaggatg ggacagccac tggagtggtat 480  
gcacatctgca cccaccaccc tgaccccaaa agcccttaggc tggacagagaa gcagctgtat 540  
tggggactgtt gccagctgac ccacaatatc actgagctgg gcccctatgc cctggacaac 600  
gacageccctt ttgtcaatgg tttcaactcat cggagctctg tgteccaccac cagcacttcc 660

gggaccccca cagtgtatct gggagcatct aagactccag cctcgatatt tggcccttca 720  
 gctgccagcc atctcctgat actattcacc ctcaacttca ccatactaa cctgcggtat 780  
 gaggagaaca tqtggctgg cttcaggaag ttcaacacta cagagagggt cttcaggge 840  
 ctgctaaggc cttgttcaa gaacaccagt ttggccctc tgtaacttgg ctgcaggctg 900  
 accttgctca gccagagaa agatggggaa gccaccggag tggatgccc ctgcacccac 960  
 cgccctgacc ccacaggccc tgggctggac agagagcagc tttatggta gctgagccag 1020  
 ctgacccaca gcatcaactga gctggggccc tacacactgg acaggagcag tctctatgtc 1080  
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&lt;210&gt; 386

&lt;211&gt; 2608

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 386

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 <212> DNA  
 <213> Homo sapiens

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&lt;210&gt; 388

&lt;211&gt; 772

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 388

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Leu	Gly	Pro	Pro	Gln	Trp	Thr	Trp	Glu	His	Leu	Gly	Leu	Gln	Phe	Leu
20													30		

Asn	Leu	Val	Pro	Arg	Leu	Pro	Ala	Leu	Ser	Trp	Cys	Tyr	Ser	Leu	Ser
35													45		

Thr	Ser	Pro	Ser	Pro	Thr	Cys	Gly	Met	Arg	Arg	Thr	Cys	Ser	Thr	Leu
50													60		

Ala	Pro	Gly	Ser	Ser	Thr	Pro	Arg	Arg	Gly	Ser	Phe	Arg	Ala	Trp	Ser
65													80		

Leu	Phe	Lys	Ser	Thr	Ser	Val	Gly	Pro	Leu	Tyr	Ser	Gly	Cys	Arg	Leu
85													95		

Thr	Leu	Leu	Arg	Pro	Glu	Lys	Asp	Gly	Thr	Ala	Thr	Gly	Val	Asp	Ala
100													110		

Ile	Cys	Thr	His	His	Pro	Asp	Pro	Lys	Ser	Pro	Arg	Leu	Asp	Arg	Glu
115													125		

Gln	Leu	Tyr	Trp	Glu	Leu	Ser	Gln	Leu	Thr	His	Asn	Ile	Thr	Glu	Leu
130													140		

Gly	Pro	Tyr	Ala	Leu	Asp	Asn	Asp	Ser	Leu	Phe	Val	Asn	Gly	Phe	Thr
145													155		160

His	Arg	Ser	Ser	Val	Ser	Thr	Thr	Ser	Thr	Pro	Gly	Thr	Pro	Thr	Val
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165

170

175

Tyr Leu Gly Ala Ser Lys Thr Pro Ala Ser Ile Phe Gly Pro Ser Ala  
180 185 190

Ala Ser His Leu Leu Ile Leu Phe Thr Leu Asn Phe Thr Ile Thr Asn  
195 200 205

Leu Arg Tyr Glu Glu Asn Met Trp Pro Gly Ser Arg Lys Phe Asn Thr  
210 215 220

Thr Glu Arg Val Leu Gln Gly Leu Leu Arg Pro Leu Phe Lys Asn Thr  
225 230 235 240

Ser Val Gly Pro Leu Tyr Ser Gly Cys Arg Leu Thr Leu Leu Arg Pro  
245 250 255

Glu Lys Asp Gly Glu Ala Thr Gly Val Asp Ala Ile Cys Thr His Arg  
260 265 270

Pro Asp Pro Thr Gly Pro Gly Leu Asp Arg Glu Gln Leu Tyr Leu Glu  
275 280 285

Leu Ser Gln Leu Thr His Ser Ile Thr Glu Leu Gly Pro Tyr Thr Leu  
290 295 300

Asp Arg Asp Ser Leu Tyr Val Asn Gly Phe Thr His Arg Ser Ser Val  
305 310 315 320

Pro Thr Thr Ser Thr Gly Val Val Ser Glu Glu Pro Phe Thr Leu Asn  
325 330 335

Phe Thr Ile Asn Asn Leu Arg Tyr Met Ala Asp Met Gly Gln Pro Gly  
340 345 350

Ser Leu Lys Phe Asn Ile Thr Asp Asn Val Met Lys His Leu Leu Ser  
355 360 365

Pro Leu Phe Gln Arg Ser Ser Leu Gly Ala Arg Tyr Thr Gly Cys Arg  
370 375 380

Val Ile Ala Leu Arg Ser Val Lys Asn Gly Ala Glu Thr Arg Val Asp  
385 390 395 400

Leu Leu Cys Thr Tyr Leu Gln Pro Leu Ser Gly Pro Gly Leu Pro Ile  
405 410 415

Lys Gln Val Phe His Glu Leu Ser Gln Gln Thr His Gly Ile Thr Arg  
420 425 430

Leu Gly Pro Tyr Ser Leu Asp Lys Asp Ser Leu Tyr Leu Asn Gly Tyr  
435 440 445

Asn Glu Pro Gly Pro Asp Glu Pro Pro Thr Thr Pro Lys Pro Ala Thr  
450 455 460

Thr Phe Leu Pro Pro Leu Ser Glu Ala Thr Thr Ala Met Gly Tyr His  
465 470 475 480

Leu Lys Thr Leu Thr Leu Asn Phe Thr Ile Ser Asn Leu Gln Tyr Ser  
485 490 495

Pro Asp Met Gly Lys Gly Ser Ala Thr Phe Asn Ser Thr Glu Gly Val  
500 505 510

Leu Gln His Leu Leu Arg Pro Leu Phe Gln Lys Ser Ser Met Gly Pro  
515 520 525

Phe Tyr Leu Gly Cys Gln Leu Ile Ser Leu Arg Pro Glu Lys Asp Gly  
530 535 540

Ala Ala Thr Gly Val Asp Thr Thr Cys Thr Tyr His Pro Asp Pro Val  
545 550 555 560

Gly Pro Gly Leu Asp Ile Gln Gln Leu Tyr Trp Glu Leu Ser Gln Leu  
565 570 575

Thr His Gly Val Thr Gln Leu Gly Phe Tyr Val Leu Asp Arg Asp Ser  
580 585 590

Leu Phe Ile Asn Gly Tyr Ala Pro Gln Asn Leu Ser Ile Arg Gly Glu  
595 600 605

Tyr Gln Ile Asn Phe His Ile Val Asn Trp Asn Leu Ser Asn Pro Asp  
610 615 620

Pro Thr Ser Ser Glu Tyr Ile Thr Leu Leu Arg Asp Ile Gln Asp Lys  
625 630 635 640

Val Thr Thr Leu Tyr Lys Gly Ser Gln Leu His Asp Thr Phe Arg Phe  
645 650 655

Cys Leu Val Thr Asn Leu Thr Met Asp Ser Val Leu Val Thr Val Lys  
660 665 670

Ala Leu Phe Ser Ser Asn Leu Asp Pro Ser Leu Val Glu Gln Val Phe  
675 680 685

Leu Asp Lys Thr Leu Asn Ala Ser Phe His Trp Leu Gly Ser Thr Tyr  
690 695 700

Gln Leu Val Asp Ile His Val Thr Glu Met Glu Ser Ser Val Tyr Gln  
705 710 715 720

Pro Thr Ser Ser Ser Thr Gln His Phe Tyr Leu Asn Phe Thr Ile  
725 730 735

Thr Asn Leu Pro Tyr Ser Gln Asp Lys Ala Gln Pro Gly Thr Thr Asn  
740 745 750

Tyr Gln Arg Asn Lys Arg Asn Ile Glu Asp Ala Ala Pro His Arg Gly  
755 760 765

Gly Leu Pro Val  
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<212> PRT  
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<400> 389  
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20 25 30

Cys Thr His His Pro Asp Pro Lys Ser Pro Arg Leu Asp Arg Glu Gln  
35 40 45

Leu Tyr Trp Glu Leu Ser Gln Leu Thr His Asn Ile Thr Glu Leu Gly  
50 55 60

Pro Tyr Ala Leu Asp Asn Asp Ser Leu Phe Val Asn Gly Phe Thr His  
65 70 75 80

Arg Ser Ser Val Ser Thr Thr Ser Thr Pro Gly Thr Pro Thr Val Tyr  
85 90 95

Leu Gly Ala Ser Lys Thr Pro Ala Ser Ile Phe Gly Pro Ser Ala Ala  
100 105 110

Ser His Leu Leu Ile Leu Phe Thr Leu Asn Phe Thr Ile Thr Asn Leu  
115 120 125

Arg Tyr Glu Glu Asn Met Trp Pro Gly Ser Arg Lys Phe Asn Thr Thr  
130 135 140

Glu Arg Val Leu Gln Gly Leu Leu Arg Pro Leu Phe Lys Asn Thr Ser  
145 150 155 160

Val Gly Pro Leu Tyr Ser Gly Cys Arg Leu Thr Leu Leu Arg Pro Glu  
165 170 175

Lys Asp Gly Glu Ala Thr Gly Val Asp Ala Ile Cys Thr His Arg Pro  
180 185 190

Asp Pro Thr Gly Pro Gly Leu Asp Arg Glu Gln Leu Tyr Leu Glu Leu  
195 200 205

Ser Gln Leu Thr His Ser Ile Thr Glu Leu Gly Pro Tyr Thr Leu Asp  
210 215 220

Arg Asp Ser Leu Tyr Val Asn Gly Phe Thr His Arg Ser Ser Val Pro  
225 230 235 240

Thr Thr Ser Thr Gly Val Val Ser Glu Glu Pro Phe Thr Leu Asn Phe  
245 250 255

Thr Ile Asn Asn Leu Arg Tyr Met Ala Asp Met Gly Gln Pro Gly Ser  
260 265 270

Leu Lys Phe Asn Ile Thr Asp Asn Val Met Lys His Leu Leu Ser Pro  
275 280 285

Leu Phe Gln Arg Ser Ser Leu Gly Ala Arg Tyr Thr Gly Cys Arg Val  
290 295 300

Ile Ala Leu Arg Ser Val Lys Asn Gly Ala Glu Thr Arg Val Asp Leu  
305 310 315 320

Leu Cys Thr Tyr Leu Gln Pro Leu Ser Gly Pro Gly Leu Pro Ile Lys  
325 330 335

Gln Val Phe His Glu Leu Ser Gln Gln Thr His Gly Ile Thr Arg Leu  
340 345 350

Gly Pro Tyr Ser Leu Asp Lys Asp Ser Leu Tyr Leu Asn Gly Tyr Asn  
355 360 365

Glu Pro Gly Pro Asp Glu Pro Pro Thr Thr Pro Lys Pro Ala Thr Thr  
370 375 380

Phe Leu Pro Pro Leu Ser Glu Ala Thr Thr Ala Met Gly Tyr His Leu  
385 390 395 400

Lys Thr Leu Thr Leu Asn Phe Thr Ile Ser Asn Leu Gln Tyr Ser Pro  
405 410 415

Asp Met Gly Lys Gly Ser Ala Thr Phe Asn Ser Thr Glu Gly Val Leu  
420 425 430

Gln His Leu Leu Arg Pro Leu Phe Gln Lys Ser Ser Met Gly Pro Phe  
435 440 445

Tyr Leu Gly Cys Gln Leu Ile Ser Leu Arg Pro Glu Lys Asp Gly Ala  
450 455 460

Ala Thr Gly Val Asp Thr Thr Cys Thr Tyr His Pro Asp Pro Val Gly  
465 470 475 480

Pro Gly Leu Asp Ile Gln Gln Leu Tyr Trp Glu Leu Ser Gln Leu Thr  
485 490 495

His Gly Val Thr Gln Leu Gly Phe Tyr Val Leu Asp Arg Asp Ser Leu  
500 505 510

Phe Ile Asn Gly Tyr Ala Pro Gln Asn Leu Ser Ile Arg Gly Glu Tyr

515	520	525
Gln Ile Asn Phe His Ile Val Asn Trp Asn Leu Ser Asn Pro Asp Pro		
530	535	540
Thr Ser Ser Glu Tyr Ile Thr Leu Leu Arg Asp Ile Gln Asp Lys Val		
545	550	555
560		
Thr Thr Leu Tyr Lys Gly Ser Gln Leu His Asp Thr Phe Arg Phe Cys		
565	570	575
Leu Val Thr Asn Leu Thr Met Asp Ser Val Leu Val Thr Val Lys Ala		
580	585	590
Leu Phe Ser Ser Asn Leu Asp Pro Ser Leu Val Glu Gln Val Phe Leu		
595	600	605
Asp Lys Thr Leu Asn Ala Ser Phe His Trp Leu Gly Ser Thr Tyr Gln.		
610	615	620
Leu Val Asp Ile His Val Thr Glu Met Glu Ser Ser Val Tyr Gln Pro		
625	630	635
640		
Thr Ser Ser Ser Ser Thr Gln His Phe Tyr Leu Asn Phe Thr Ile Thr		
645	650	655
Asn Leu Pro Tyr Ser Gln Asp Lys Ala Gln Pro Gly Thr Thr Asn Tyr		
660	665	670
Gln Arg Asn Lys Arg Asn Ile Glu Asp Ala Leu Asn Gln Leu Phe Arg		
675	680	685
Asn Ser Ser Ile Lys Ser Tyr Phe Ser Asp Cys Gln Val Ser Thr Phe		
690	695	700
Arg Ser Val Pro Asn Arg His His Thr Gly Val Asp Ser Leu Cys Asn		
705	710	715
720		
Phe Ser Pro Leu Ala Arg Arg Val Asp Arg Val Ala Ile Tyr Glu Glu		
725	730	735
Phe Leu Arg Met Thr Arg Asn Gly Thr Gln Leu Gln Asn Phe Thr Leu		
740	745	750
Asp Arg Ser Ser Val Leu Val Asp Gly Tyr Phe Pro Asn Arg Asn Glu		
755	760	765
Pro Leu Thr Gly Asn Ser Asp Leu Pro Phe Trp Ala Val Ile Leu Ile		
770	775	780
Gly Leu Ala Gly Leu Leu Gly Leu Ile Thr Cys Leu Ile Cys Gly Val		
785	790	795
800		
Leu Val Thr Thr Arg Arg Lys Lys Glu Gly Glu Tyr Asn Val Gln		
805	810	815

Gln Gln Cys Pro Gly Tyr Tyr Gln Ser His Leu Asp Leu Glu Asp Leu  
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Gln

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<213> Homo sapiens

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20                    25                    30

Thr Glu Gly Val Leu Gln His Leu Leu Arg Pro Leu Phe Gln Lys Ser  
35                    40                    45

Ser Met Gly Pro Phe Tyr Leu Gly Cys Gln Leu Ile Ser Leu Arg Pro  
50                    55                    60

Glu Lys Asp Gly Ala Ala Thr Gly Val Asp Thr Thr Cys Thr Tyr His  
65                    70                    75                    80

Pro Asp Pro Val Gly Pro Gly Leu Asp Ile Gln Gln Leu Tyr Trp Glu  
85                    90                    95

Leu Ser Gln Leu Thr His Gly Val Thr Gln Leu Gly Phe Tyr Val Leu  
100                    105                    110

Asp Arg Asp Ser Leu Phe Ile Asn Gly Tyr Ala Pro Gln Asn Leu Ser  
115                    120                    125

Ile Arg Gly Glu Tyr Gln Ile Asn Phe His Ile Val Asn Trp Asn Leu  
130                    135                    140

Ser Asn Pro Asp Pro Thr Ser Ser Glu Tyr Ile Thr Leu Leu Arg Asp  
145                    150                    155                    160

Ile Gln Asp Lys Val Thr Thr Leu Tyr Lys Gly Ser Gln Leu His Asp  
165                    170                    175

Thr Phe Arg Phe Cys Leu Val Thr Asn Leu Thr Met Asp Ser Val Leu  
180                    185                    190

Val Thr Val Lys Ala Leu Phe Ser Ser Asn Leu Asp Pro Ser Leu Val  
195                    200                    205

Glu Gln Val Phe Leu Asp Lys Thr Leu Asn Ala Ser Phe His Trp Leu  
210                    215                    220

Gly Ser Thr Tyr Gln Leu Val Asp Ile His Val Thr Glu Met Glu Ser  
 225                    230                    235                    240  
 Ser Val Tyr Gln Pro Thr Ser Ser Ser Thr Gln His Phe Tyr Leu  
 245                    250                    255  
 Asn Phe Thr Ile Thr Asn Leu Pro Tyr Ser Gln Asp Lys Ala Gln Pro  
 260                    265                    270  
 Gly Thr Thr Asn Tyr Gln Arg Asn Lys Arg Asn Ile Glu Asp Ala Leu  
 275                    280                    285  
 Asn Gln Leu Phe Arg Asn Ser Ser Ile Lys Ser Tyr Phe Ser Asp Cys  
 290                    295                    300  
 Gln Val Ser Thr Phe Arg Ser Val Pro Asn Arg His His Thr Gly Val  
 305                    310                    315                    320  
 Asp Ser Leu Cys Asn Phe Ser Pro Leu Ala Arg Arg Val Asp Arg Val  
 325                    330                    335  
 Ala Ile Tyr Glu Glu Phe Leu Arg Met Thr Arg Asn Gly Thr Gln Leu  
 340                    345                    350  
 Gln Asn Phe Thr Leu Asp Arg Ser Ser Val Leu Val Asp Gly Tyr Phe  
 355                    360                    365  
 Pro Asn Arg Asn Glu Pro Leu Thr Gly Asn Ser Asp Leu Pro Phe Trp  
 370                    375                    380  
 Ala Val Ile Leu Ile Gly Leu Ala Gly Leu Leu Gly Leu Ile Thr Cys  
 385                    390                    395                    400  
 Leu Ile Cys Gly Val Leu Val Thr Thr Arg Arg Arg Lys Lys Glu Gly  
 405                    410                    415  
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 Asp Leu Glu Asp Leu Gln  
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&lt;210&gt; 392

&lt;211&gt; 310

&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 392

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Arg	Trp	Glu	Pro
20	25		30

Gln	Ile	Leu	Phe
Trp	Ser	Ile	Ile
35	40		45

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Gly	Phe	Gly	Ile

50

55

60

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Gly Lys Asp Glu Leu Ser Glu Gln Asp Glu Met Phe Arg Gly Arg Thr  
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Lys Asn Val Gln Leu Thr Asp Ala Gly Thr Tyr Lys Cys Tyr Ile Ile  
 145                  150                  155                  160

Thr Ser Lys Gly Lys Gly Asn Ala Asn Leu Glu Tyr Lys Thr Gly Ala  
 165                  170                  175

Phe Ser Met Pro Glu Val Asn Val Asp Tyr Asn Ala Ser Ser Glu Thr  
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Leu Arg Cys Glu Ala Pro Arg Trp Phe Pro Gln Pro Thr Val Val Trp  
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Ala Ser Gln Val Asp Gln Gly Ala Asn Phe Ser Glu Val Ser Asn Thr  
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Ser Phe Glu Leu Asn Ser Glu Asn Val Thr Met Lys Val Val Ser Val  
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<210> 393

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&lt;400&gt; 393

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Gly Arg His Ser Ile Thr Val Thr Val Ala Ser Ala Gly Asn Ile  
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Gly Glu Asp Gly Ile Leu Ser Cys Thr Phe Glu Pro Asp Ile Lys Leu  
50 55 60

Ser Asp Ile Val Ile Gln Trp Leu Lys Glu Gly Val Leu Gly Leu Val  
65 70 75 80

His Glu Phe Lys Glu Gly Lys Asp Glu Leu Ser Glu Gln Asp Glu Met  
85 90 95

Phe Arg Gly Arg Thr Ala Val Phe Ala Asp Gln Val Ile Val Gly Asn  
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115 120 125

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130 135 140

Tyr Lys Thr Gly Ala Phe Ser Met Pro Glu Val Asn Val Asp Tyr Asn  
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165 170 175

Pro Thr Val Val Trp Ala Ser Gln Val Asp Gln Gly Ala Asn Phe Ser  
180 185 190

Glu Val Ser Asn Thr Ser Phe Glu Leu Asn Ser Glu Asn Val Thr Met  
195 200 205

Lys Val Val Ser Val Leu Tyr Asn Val Thr Ile Asn Asn Thr Tyr Ser  
210 215 220

Cys Met Ile Glu Asn Asp Ile Ala Lys Ala Thr Gly Asp Ile Lys Val  
225 230 235 240

Thr Glu Ser Glu Ile Lys Arg Arg Ser His Leu Gln Leu Leu Asn Ser  
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260 265 270

Leu Pro Leu Ser Pro Tyr Leu Met Leu Lys  
275 280

## 11729.1 contig

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## 11729-45.21.21.cons1

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## 11729-45.21.21.cons2

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## 11731.1 contig

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## 11731.2contig

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## 11734.1contig

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## 11734.2contig

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## 11736.1contig

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## 11736.2 contig

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## 11739-1&amp;2

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## 11740.1 contig

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## 11766.1 contig

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## 11766.2 contig

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## 11773.1 contig

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## 11773.1&amp;2

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## 11777.1&amp;2.cons

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## 11779.2.condg

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## 11781 &amp; 37.cons

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11781-76-87-37

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 CAGTGTCGACCTACACACTCACTGCTCTTACCAAGATGATGTTGCCAGAGTCAGTAGCCATT  
 GTTGCTCCCCCAAGTCCAGGAAACTGGATTCTTAAACTAACTGACCATGGACTAGAGG  
 AGATTTCTTCTGTGCCAGAAGGAGTTTACCCACACAGCAAGGATCCACCTCTGTTCTG  
 TAGCTGCAGGCCACGTGACTGTTGTGGACAGAGCAGTGACCATCACAGACCTTCCATGAGC  
 GTTGAGTCAACACCTCCAAGAACACAAAACCATACTGACTGTACTGTAGCCCCCTTAAT  
 TTAGCTTCTAGAAACCTTGGAGTTTGTAGATAGTAGAAAGGGGGCATCACCTGA  
 GAAAGAGCTGATTTGTATTTCAGGTTGAAAAGAAATAACTGAACATACTTGTAGGCAA  
 GTCAAGAAAGAGAACATGGTCACCCAAAAGCAACTGTAACCTCAGAAATTAAAGTTACTCAGA  
 AATTAAAGTAGCTCAGAAATTAAAGAAAGAATGGTATAATGAACCCCCATATACCCCTCTC  
 TGATTACCAATTGTTAACATTCTCTCTGJCACTATCTTCTAATTCTCTCTAATTTC  
 ATTGTTATATTACCTCTGGGCTCAATAAGGGCATCTGTGCAAGAAATTGGAGCCAT  
 TTAGAAAATCTTGGATTCTGTGTTATGGCAATATGAATGGAGCTTAACTGGG  
 GTGAGGGACAGCTACTCCATTGACCAAGATTGGCTAACACATCCCAGAATGATT  
 TTGTCAGGAATTATGTTATTAAATAAAATTTCAGGATTTCTCTACAATAAGTAA  
 CAATTAA

117841 &amp; 2

GGACGACAAGGCCATGGCGATACTCGAATTCAACCCCTTGGAAATTAAATAAACCT  
 GGAACAGGGAGGTGAAGTTGGAGCTGAGATCTCTTCCATATCTATACCTTTGTGACAGT  
 TGAATGGAAACTGTTGGGTTAGGGCATCTTAGAGTTGATGGAAAGCAGACAG  
 GAACCTGCTGGGAGGTCAACTGGGAAACTGGTGAATGTGGAAATAACTTACCTTTGTGCTC  
 CACTAAACCAAGATGTGTTCCAGCTTCTGACATGCAAGGATCTACTTTAATTCCACACT  
 CTCATTAAATAATTGAAATAAAAGGGAAATGTTGGCACCTGATATAATTGCCAGGCTATG  
 TGACACTAGGAAGGAATGCTTCCCGATAACAGCCAACTGCACTGGTCTGACTTTATAAT  
 TTTAAATAAAATGAAACTTATC

11785.1 contig

GGCAGTGACATTACCCATGCGAACCCACCTTCCCTTTCTCAGGATTCTCTGTAAGTGG  
 AAGAGAGCACCCAGTCTGGGCTGAAACATCTGAAAGTAGGGAGAACCTAAATA  
 ATCACTATCTCAGAGGGCTCTAAGGTGCCAAGAACGCTCACTGGACATTAAAGTGCCAAC  
 AAAGGCATACTTCCGAAATGCCAAGTCAAACTCTAACTCTGTCTCTCAGAGACA  
 AGTGAGACTCAAGAGTCTACTGCTTAACTGGCAACTACAGAAACTGGTGTACCCAGAA  
 AACAGGAGCAATTAGAAATGGCTCCAAATTCAAGCTCCGAAACAGGATGTGCTT  
 CCTTGGCCATTAGGGTTCTCTCTCTCTTCTCTTAACTTACCACT

FIG. 1F

11718-1&amp;2 cons

TGGCCTGAAA-CAACGGCCCTCTTACTGTAAAAATGCACCCACAGGTGCTTAGCCGTGGG  
 CATCTCAACCACCAAGCCCTCTGTGGGGGGCAGGTGGCGTCCCTGTGGGCCTCTGGGCCAC  
 GTCCAGCCTCTGCTCTGCCTTCCTGCTCCAGCAGCTGTTCCGGCATCCCTGGTCACCTG  
 GTCAGTTGGCGTGGGCCTCTGTGCTGCTCCAGCAGCTCCAGXGGTGGCCGGCTTCA  
 CCGCAGCCTCATGTTGTCTCCGGAGGCTGCTCACGGCCTCTCTCGCAGGGCTGT  
 CTCACCCCTCCGGXGCCACCTCTCCAGCTCCAGCTGCTGGCGGGCTGCAGCGTGGCCAGC  
 TCGGCCTTGGCCTGCCCGTCTCTCTCARAGGCTGCCAGCCGGTCTCGAAGCTCTGGC  
 GGATCACCTGGGCCAGGTTGCTGCCAGCTGAAGAAAGCTGCTCGTTACCGCCTGGCAGC  
 CTCCAGCGCCCGCTCTGCGCAGAACAGGCGCTGAGACGCAGATTCTCGCCCTCGGCT  
 CCCCAGCTGCCCTTCAGCTCCAGCAGCCGCTCTGAAGCTCCGCTCCAGCTGCTCCAG  
 CTGGAGAGCTCGGCCCTGTAAGCGCTTGATGCGGCTCTCGGAGCCTTC  
 TCACCTCTCTCTGGCCAGGCCATGTCGGCCTCAGCCGGTGAATGACCAGCTAATCT  
 CCTTGTCCCAGGCTTCCGGATTCTCCCTAGCTCTGTCCCCGGTTAGCAGGCCACGCC  
 TCCTCCCTCTGGTGCAGGCCCTCCAGCCTGCCAGCTCCAGCTCAGCTGCTGCTTCAG  
 GGTATTCAAGCTCCATCTGGCGGGCTGCAGCGTGGCCA

13690.4

CAACTTATTACTGAAATTATAATAATAGCCCTGTCGGTTTGCTGTTCCAGGCTGTGATATAT  
 TTTCCTAGTGGTTGACTTAAAGTTAAATAAGGTTAAATTCTCCCC

13693.1

TGCAAGTCACGGGAGTTTATTATAATTAAATTCTCCCCAGATGGAGACTCTGTCGCCAGG  
 CTGGAGTGCAATGGTGTGATCTGCCACTGCAACCTCCACCTCTGGGTTCAAGCGATT  
 CTCCGCCACAGCCTCCCGACTAGCTGGATTACAGGTGCCAGGACACCCAGCTAAT  
 TTTATATTAGTAAAGACAGGGTTCCCAATTTGGCCAGGCTGGTCTGAACTCTGA  
 CCTCAGGTGATCCACCTGCCCTCCCAAGGTGGGATTACAGGCAGCTACCC  
 GTGCCCTGCCAGCCACTGGAGTTAAAGGACAGTCATTTGGCTCCAGCCTAACGGGCA  
 TTTCCCCCATCAGAAAAGCCGGGGCTCTGACTCTAAATAGGGCACCTGAAAGTCAG  
 TCAGTGAAGTCTCTCTCTAACTCCCCACCCGGGCCATTGGCCTGACACAGCCTTGCC  
 AGGANGCCTGCATCTGCAAAGAAATTCACTTCTTCCG

13694.1

CAGAGAACTKAAGAAAGATGTCGGCTTCTTAAATGAAATGAGAGAGAACCCCATTTGTATC  
 CCTGAATCATTGAGAAAAGCCGGGGTGGCGACAGCGCGACCTAGGGATCGATCTGGAG  
 GGACTTGGGGACCGTGCAGAGACCTCTACCTCGAGCGCGACGGACCTCCGGGATGC  
 CTGGGGACGAGATGGACCCACTGGAAAGTCAGTTGGATTCAAGATTCTCTCAGCAAGATAAC  
 TCCTTGCCTGATAATTGAAGATTCTCACCCCTGAAAGCCAGGTTCTAGAGGATGATTCTGGT  
 TCTCACTTCAGTATGCTATCTCGACACCTTCTAACTCCAGAGGCCACAAGAAATTCTG  
 TGTTGGATGTTGGTCCAAATCTTGAACAAACAGCTGGAGAAGAACGAGGAGACCGGTA  
 TAGTCGGTTCAATGAACATTGAAAGAAACCGAGTTGCAGACCCCTG

FIG. 1G

13694.2

GAATGTCTGAAACAGGGACCTCTGACCACAGAGCTGCAGGAGATGCAGAGTGGTGGCAG  
 GAGTGGAGCCAAAGAACACCCACCTCCCTTGAGGGAGTAGAGCAACCATCAGAAG  
 ATACTGTTTATTGCTCTGGTCACACAGTCTCCTGAGTTGACAAAACCTCAGGCTCTGGT  
 GACTCTGAATCTGCACTCCACTTCCATAAGTTCTTGTCAGACACTGTTCTTGCCTC  
 CATAGCAGAACAGATGCTTGGGCTAAAAGGCATGCTCTGACCTTGCAAGTGGTGG  
 ATTTGCTCTTACAAACATGTACATCTTACTGGGCTGTCATGCTTAATTGCACTTGA  
 TGGACTGTTCTGCTATGGGATATCTCGTGGACTGTTCTCATGCTTAATTGCACTTGA  
 GCATCCACATCAGACAGCCTGGTATAACCAGACTTGGTGGTAACTGATTGTAGCTGCTT  
 TGCCACTCATATGGCACAAAGTATTTCTCAACATCCTGGCTCTGGAG

13695.1

GAAATGTATATTAATCATTCTCTGAAAGATCAGAACTCTRAAATCAGTTTCTATAACAR  
 CATGTAATACAGTCACCGTGGCTCAAAGTCCAGGAAGGCAGTGGTTAACACATGAAGAG  
 TGTGGGAAGGGGGCTGGAAACAAAGTATTCTTCTTCAAAGCTCATCCCTCAAGGCCT  
 CAATTCAAGCAGTCATTGCTCTTGCCTTCAAAGTCTGTGTGCTTCATGGAAGGTATAT  
 GTTGTGCTTAAATTGAAATTGTGCCAGGAAGGGTCTGGAGATCTAAATTCAAGAGTAAG  
 AAAACCTGAGCTAGAACTCAGGCAATTCTTACAGAACTTGGCTTGCAAGGGTACAATGA  
 ANGGAAAGAAACTTAAAGAACCTCAACAAAGCTGAAGATAATCCCACAGGCATTCCCAG  
 GCCTGCAACTCTGTTCACTGAGAGATGTTATCCTG

13695.2

AGTCTGGAGTGAGCAACAAAGAGCAACAAACARRAGAACCCAAACCCAGAACGGCTCCA  
 ATATGAAACAGATAAAATCTATCTTCAAAAGACATATTAGAAGTTGGGAAAATAATTCACTGT  
 GAACTAGACAAGTGTCTTAAAGACTGATAAGTAAATGCACTGGGAGAACAGTGCATCCCC  
 AGATCTCAGGGACCTCCCCCTGCTGCACTGGGAGTGAAGAGGACAGGGATAGTGCATG  
 TTCTTGTCTCTGAATTCTTACTGTTATGCTGTAAATGTTGCTCTGAGGAAGCCCCCTGGAA  
 AGTCTATCCCAACATATCACAATCTTATAATTCCACAAATTAGCTGTAGTATGTACCTAA  
 GACGCTGCTAAATTCACTGCCACTTCCCAACTCACGGGGCGGCTGCAATTAGTAATGGTCA  
 ATGATTCACTTTATGATGCTTCCAAAGGTGGCTTGCTTCTTCCCAACTGACAAATG  
 CCCAAGTTGAGAAAAATGATCATAAATTACCAAAACCGAGCAATCGCGACCCCC

13697.1

TAGCTGTCTCTCACTCTTATGGCAATGACCCCATATCTTATGGATTAGATAATGAAA  
 GTGTATTCTTACACTCTGTATCTTACCCAGAACGCTGAGGTGATAGCCCCGTTGTCAATTGT  
 CATCATATTCTGGCACTCACGGGGAAACTTCTGGAATTCTGCCAGGGAGCATGGCAGA  
 GGGGCACAGTGCATTCTGGGGAAATGCACTTGGCTCAGGCTGGTAATGAGTGTATAC  
 ATTACCTCTGTTACAACCTCATTGGCCACCAAGTCACAAGGCCCCACCAAAATACCAAGAG  
 CCCAAGAAAATGATGCTCTGTTGATATGTTTCTGCTGTCCCACCCAAATCTCATCTTGA  
 ATTGTAAGCTCCCATAAATTCCCATGTTGCTGGCAAGGGACCTGGTG

*FIG. 1H*

13697.2

ATCATGAGGATGTTACCAAAAGGGATGGTACTAAACCATTTGTATTGTCGTGTTTACACT  
 GCTTGAAAGATACTACCTGAGACTGGTAATTATAAACAAAAGAGATTTAATTGACTCAC  
 AGTTCTGCATGGCTGAAGAGGGCTCAGGAACCTACAGTCATGGTGGAAGGCCAAGGAGG  
 AGCAAGGCATGTCTTACATGTCAGTAGGAGAGAGGCGAGAGCAGGAGAACCTGCCACTT  
 ATAAACCATTCACTCATCATAACTCCCTATCATGAGAAAAACATGGAGGAAACCACCTC  
 ATGATCCAATCACCTCCGCCAGGTCCCTCCCTGACACGTGGGGATTATAATTCACTGAGGATT  
 AGAGGGACACAGAGACAAACCATATCATCATGAGAAATCCACCCCTCATAGTCCAAT  
 CAGCTCCCTACCAAGCCCCACCTCCAACACTGGGGATTGCAATTCAACATGAGATTGGATG  
 GGGACACAGATTCAAACCATATCATAC

13699.1&amp;2

CATGGCCTTCTCCTTAGAGGCCAGAGGTGCTGCCCTGGCTGGGAGTGAAAGCTCCAGGCAC  
 TACAGCTTCTGATTTCGGTTGGCTCTGAAAGAGAGCTACCACGAGCCCCAGCCTCA  
 CAGTGTCCACTCAAGGGCAGCTGGCTCTGTGCTGAGAGGCCAGGGCTGGTGTGACCCCT  
 GGGAACTGACCCGGGAACAACAGGTGGCCAGAGTGAGTGTGGCTGGCCCTCAACCT  
 AGTGTCCGCTCTCTCTGGAGCCAGTGTGAGTTAAAGGCATTAAGTGTAGATA  
 CAAGCTCTGTGGCTGGAAACACCCCTCTGCTGATAAGCTCAGGGGCCACTGAGGA  
 AGCAGAGGCCCTTGGGGTGCCTCTGAAAGAGAGCGTCAGGCCATAGCTCTGTCCCTC  
 TGGTGTCCCACGTCTGTTCTCACCCCTCATCTGGGAGCAGCTGCACCTGACTGGCCAC  
 GCAGGGGGCAGTGGAGGCACAGGCTCAGGGTGGCCGGCTACCTGGCACCCCTATGGCTTAC  
 AAAGTAGAGTTGGCCAGTTCTTCCACCTGAGGGGAGCAGCTCTGACTCCTAACAGTCTT  
 CCTTGGCCCTGCCATCATCTGGGTGGCTGTCAGAAAGGCGGGCATGCTTCTAAACAGGCCAC  
 CAGGCCACAGGAGGCTGTAGGGCACTTCAAGGTGGGAAACAGTCTTAGATAAGTAA  
 GGTGACTTGCTAAGGCTCAGGACCCCTGATCTTGGAUTCTCACAGCAGACTGCATGT  
 SAACAACTGGAACCGAAAACATGCCCTCACTATAAAA

13703.3

CCAGAACCTCTCTCTTGGAGAAAGGGAGGCCCTTGGAGACACAGAGGGTTTACCT  
 TGATGACCTCTAGAGAAAATGCCAAGAACCCACCTCTGGTCCCACCTGCAGACCC  
 ACAGCAGTCAGTGGCACGGCCCTCTGAGAAGGTCACTGGCTCATGGCTGTTCCA  
 ACCAATGGGAGGAGAGAACGGCTTAACTTCTGGCCACCCATTCTCTGTACCAAGCACCT  
 CGTTCAGTCAGYGTGTCCAGCAACGGTACCGTTACAGTCA

13705.1

TGCATGTACTTTATTTATGTGTTTSGTGTGAAACCAACTGTCCCACCAAGCATGACTGA  
 ACATCACTCACTTCCCTACTTGTATCACAGGGCAACGCCAGAGGCCAGACCCAGGATTC  
 CAAACACACTGCACGACAATATTGGATCCGCTGTCAGTAAGTGTCCGTCACTGACCCA  
 RACGCTGTTACGTGGCACAGTGTACAGTGCACGTAACAGCACTGTACTTTCTCCCA  
 TGAACAGTTACCTGCCATGTATCTACATGATTGAAACAGTTGAACAGTTAATTCTGACA  
 CTTGAATAATCCCATCAAAACCGTAAATCACTTTGATGTTGTAACGACAACATAGCAT  
 CACTTACGACAGAAATCATCTGGAAACAGAACACGAATACATACATCTTAAAAAATG  
 CTGGGGTGGCCAGGCACAGCTCACCCCTGTAATCCCAGCACTTGGAGGCTTAAGCG  
 GGTG

*FIG. II*

13705.3

TGGGGCGGAAAGAACGCCAAGGCCAAGGACCTGGTCCGGCAGCTGCAGCTGGAGGCCAG  
 GAGCAGAGGAAGCAGAACAGCGCCAGACTGTGTCTGGGCTGCACAGATACCTTCACTTG  
 CTGGATGAAATGAAAATTACCCGTGTCTTGATGCAGACGGTGTGATGTGATTCTTCC  
 CACCAATAACCAACAGTGAGAACAAAGGTTAAGAAAACGACTCTGATTGTTTGG  
 AAGTAACAAGTGCACCGAGTCTGCAGATTGCAAGGATGTATGGATGCCCTCATCTGAA  
 AATGGCAAGAAATGAAAAAGTACACTTAAAGAGGAAGGATCACTCTCAGAT  
 ACTGAAGCCGATGCAGTCCTGGACAACTCCAGATCCCACAAACGAATCCCAGTGTGGA  
 AAGGACGGGCCCTTCTCTGGTGGAACANGTCCCCGGTGGATCTTGGAAANGGAA  
 CCTGAANGTGGTGTACCCGTCCAAGGCCGACCTTGGCCAC

13707.4

TCCCCCGCTCGCAGGGCNCGTGCACCTGCCYGTCCGCCGCTCGCTCGCTCGCCCCCGCG  
 CGCCCGCTGCCGACCAGYCAGCATGCTGCCGAGAGTGGCTGCCCGCGCTGCCGCTGCCG  
 CGCCCGCCGCTGCTGCCGCTGCTGCCGCTGCTGCTGCTGC

13708.1&amp;2

GGCGGGTAGGCATGGAACCTGAGAACGAAAGAACGTTTCAAGACTACGTGGGAAGAAT  
 GAAAAAAACCAAAATTATGCCAAGATCAGCAAACGGGACAGGGAGCTCCAGCCCCGAGA  
 GCCTATTATTACCACTGAGGAGCCAGAACCGAGCTGTGCTGTACTATCACAGAACAGA  
 GGAGCTCAAGAGATTGGAGAAAATGATGATGCTTAAACTCACCAGGGCGGA  
 TAACACTGTTTGAAGAACACATTTCATGGACTGAAAGACATAAAGTGGAGACCAAGATG  
 AAGTTCAACCACCTGATGACACTCCAAACAGATTAGCTCACCT

13709.1

TCTGAAGCTTAAATCTTAAATACCGATAATGRTAAACACCTATAGCATAGAGTTG  
 TTTGAGATTAAATGAGATAATACATGTTAAATTATGTCCTGGCATACACCAAGATTGTTG  
 TTGTTGTTGATGATGATGATGATGATAATATTCTATCCCCAGTGCAACTGCTTG  
 AACCTATTAGATAATCAAAACATGTTCTGAACTGAGATCAATTCCCCATGTTGCTGAC  
 TGATCAACCCSTACATTCTCTAGAGGAGATGACATTGAGCAAGATCTTAAAGAAAAT  
 CAGATGCCCTCACCTGACCACCTGTTGGTATCCCAGGGCACTTTGATCATCTCCATTAG  
 CTCTGATCTCACCAAGCCCATCATTATTGATGCTGCCCTCTGAAGCTGGAGCTGCCAC  
 CATCMGCTAGAATAAAATCATCTTCAATAAAATAGTGACCCCTCTTTTATTGCAATT  
 CCCAAAGCCAAAGCACCGTGGGANGGTAG

FIG. 1J

13709.2

TATGAAGAAGGGAAAAAGAAGATAATTGTGAAAGAAAATGGGTCCAGTTACTAGTCCTTGA  
 AAAGGGTCAGTCTGTAGCTCTTAAATGAGAATAGGCAGCTTCAGTTGCTCAGGGTCAG  
 ATTCCTTAGTGGTGTATCTAATCACAGGAACATCTGTGGTTCCCTCCAGTCTTTCTGG  
 GGGACTTGGGCCCACTTCTCATTTCAATTAGAGGAAATAGAACCTAAAGTACAATT  
 ACTGTTGTTAACAAAGCACATGGTGGGAGCTATTCTGATTTGTAAAAT  
 GCTGTTTGTGTGCTCATATGGTCCAAAATGGGTGCTGGCCAAGAGAGAGACTGT  
 TACAGAAGCCAGCAAGAAGACCTCTGTCATTACACCCCCGGGATATCAGGAATTGAC  
 TCCAGTGTGTGCAAATCCAGTTGCCATCTTCT

13712.1&amp;2

TGAGGGACTGATTGGTTGCTCTCTGCTATTCAATTCCCCAAGCCCACCTGTTCTGCAGCG  
 TCCTCCTTCTCATTCCTTAGTTGTACCCCTCTTTCATCTGAGACCTTCCTTCTGATGT  
 CGCCTTTCTCTCTTCTGCTTTCTCATGTTCTGCTCAGCATGTTCTGGTGCTTCATCT  
 GCATCATTCCTTCAAGATGCTGTAGCTCTCCCTCTTCTGCTCTTCTTCTTCTTCTT  
 TTTGGGGGCTTCTGACTGAGCTGAGGGGCCAGGGTCTGGCTTGGAGCG  
 AGCCAGGAAGGGCTGCTCTGGGCTCTAGGGAGCAAGCTGGCCTTCATTGTGATCCCA  
 AGACGGGCAGCCTTGTGTGCTTGTGCCCCCTCACAGGCTGGAGCAGCATCTCATAGTC  
 GAATCTTGGGACTTGGACCCCTGGTGTGCTCATACTGCAGCTCTCAAGTCTTGT  
 GGTCTCTCACCTGAACCTAAAGGGCTCTCTTCAAAACTCTGATACAGCAAGTGG  
 GCTGGGATGATTATAACGGGCTCTCTTCAAGAAAGGCTCTTATCTGACTCCATCTG  
 CCCAGTTCCACTACCAAGTGGCCAGCTTGTGAAGAGCTCATCCACCAGTGGTTT  
 GTGAACCTCTGGCAGGGTCACTGCTTACCCATGAGTGTCTGCTCAGYGTCAACCTGA  
 GACCTGAGTGAACCAATTCTCTTCCG

13714.1&amp;2

GACAACATGAAATAAACTCTAGAGGACAAAAATTAAACTCAATAGAGTGTAGTCTAGTTAA  
 AAACTCGAAAAATGAGCAAGTCTGGGGAGTGGAGGAAGGGCTATACTATAAAATCCAAG  
 TGGCCTCTGATCTAACAAAGCACTGCTTATACACATCTGAACTGGACATACCAC  
 CTTACGCAGGAAACACGGCTGGACCTCTAACGGAAATTAAACATGCACCAACCCACATC  
 TAACCTACCTGCCGGCTAGGTACCACTCCSTGCTTCGCTGAAATCAGTGCTC

13716.1&amp;2

TTGGAAATTAAATAACCTGGAACACGGAAAGGTGAAAGTGGAGTGTCTTCCATAT  
 CTATACCTTGTGCACACTGAACTGGAACTCTTGGGTTAGGGCATTCTAGAGTTGATT  
 GATGGAAAAACAGACAGGAACCTGGGGAGGTCAGTGGGAAAGTGGTGAATGTGGA  
 ATAACCTACCTTGTGCTCACTTAACCAAGATGTGCTGAGCTTCTGACATGCAAGGA  
 TCTACTTAACTCCACACTCTCATTAATAATTGAATAAAAGGAATGTTTGGCACCTGA  
 TATAATCTGCCAGGCTATGTGACACTAGGAAGGAATGGTTCCCTAACAGCCCACATGC  
 ACTGGTCTGACTTAAATTAAATAAAATGAACCTATTATC

13718\_2

AAACTGGACCTGCAACAGGGACATGAATTACTGCARGGTCTGAGCAAGCTAGCCCCCT  
 ACCTCAGGGCECCACAGCCATGACTACCTCCCCAGGAGCGGGAGGGTGAAGGGGGCTG  
 TCTCTGCAAGTGGAGCCAGAGTGGAGGAATGAGCTCTGAAGACACAGCACCCAGCCTTCT  
 CGCACCAAGCCAAGCCTTAACTGCCCTGCCATGCCAACCAGCTGAACCTGCCCC  
 TCCAAGGGACAGGAAGGCTGGGGAGGGAGTTACAACCAAGCCATTCCACCCCTCCC  
 CTGCTGGGAGAATGACACATCAAGCTGCTAACAAATTGGGGAGGGAGAAGAAAA  
 CTCTGAAAACAAAATCTTGT

13722\_3

CATGCCTTCACCACTGTTGCCAGGCTGGTCTGAACCTCTGGCTCAAGCAATCCACCC  
 GCCTCAGCCCTCAAAGTGGCTGGATTACAGATGTGAGCCATGGCACCATGCCAAAAGGC  
 TATATTCTGGCTGTGTTCCGAGACTGCITTAATCCCAACTTCTCTACATTAGATTA  
 AAAAATATTITATTCTATGGTCAACTGGAACATAATTACTGCATCTTAAGTTTCACTGAT  
 GTATATAGAAGGCTAAAGGCACAAATTITATCAAATCTAGTAGAGTAACCAAAACATAAAA  
 TCATTAATTACTTCAACTTAATAACTAATTGACATTCCCTCAAAAGAGCTGTTTCAATCCT  
 GATAGGTTCTTATTITTCAAAATATAATTGCCATGGATGCTAACCTGCAATAAGGCGC  
 ATAATGAGAATACCCCAAACCTGGA

13722\_4

GTTGGACCCCCAGGGACTGGAAAGACACTTTCTGCCCCAGCTGTGGGGAGAAGCTGAT  
 GTTCCCTTTTATTATGCTCTGGATGGAAATTCTGAGATGAGATGTTGTGGGTCTGGGAGCCAG  
 CCGTATCAGAAAATCTTTAGGGAAAGCAAGGGAAATGCTCTTGTGTTATATTATTGAT  
 GAATTAGATTCGTTGGTGGAAAGAGAAATTGAACTCTCAATGCATCCATATTCAAGGCAGA  
 CCATAAAATCAACTTCTGGCTGAAATTGGATGGTTAAACCCAATGAAGGAGTTATCATAAT  
 AGGAGCCACAAACTTCCCACAGGGCAATTAGATAATGCCCTAACCGCTCTGGTCGTTTGA  
 CATGCAAGTTACAGTTCCAAGGCAAGATGAAAGGTCGAACAGAAATTITGAATGGTA  
 TCTCAATAAAATAAAAGTTGATCAATTCCGGTTGATCCAGAAATTATAGCCTCGAGGTACTG  
 GTGGCTTCCGGAAAGCAGAGTTGGGAGAAATCTT

13724-13698-13748

GCCTACAAACATCCAGAAAGAGTCTACCTCTGCACCTGGTCTSGTCTCAGAGGTGGGATGC  
 AGATCTTCTGAAAGACCCCTGACTGGTAAGACCATCACTCTGAAGTGGAGCCAGTGACA  
 CCAAGAGAAACGTCAAAGCAAGATCCARGACAAGGAAGGCRTYCCCTCTGACCAGCAGA  
 GGTGATCTTCCGGAAAGCACCTGCAAGATGGDCGCACCCCTGCTGACTACAAACATCC  
 AGAGAGACTCYACCCCTGCACTGGTCTCCGTCTCAGAGGTGGGATGCAATCTCTGTGA  
 AGACCCCTGACTGGTAAGACCATCAACCTCCAGGTGGAGCCAGTGACACCCATCGAGAAATG  
 TCAAGGCAAAAGATCCAAGATAAGGAAGGCATCCCTCTGATCAGCAGAGGTTGATCTTGT  
 CTGGGAAACAGCTGGAAGATGGACCCACCCCTGCTGACTACAAACATCCAGAAAGAGTCCA  
 CTCTGCACTTGGTCTCCGGCTTCAAGGGGGGTCTAACGTTCCCTTTAAGGTTCMAC  
 AAATTCTTCAATTGCACTTCCCTTCAATAAGTGTGCAATTCCC

*FIG. II*

13730.1

GAAC TGG CCTGAG CCAAGTCA TGCCTTGTC CGCA TCGCC GTGT CAC CTGT KCC  
 TGCC CCTC ACCC CCTC CTGG CTCT GAGC AGCAC ATCT CAA A TAGC CTAT CCCT  
 CCTG CAA AATCAC ACAC ACAC ATCG GGG CCAC ACAC ATAC CTG CTGCC CTGG AGAT GGGG AAGTA  
 GGAG AGAT GAAT AGAG GCCC ATAC AT TGAC AGA AGGAG GGGG CAGG TGCA GATA AAAGC  
 AGCAG ACCC AGCGG CAGCTGAGGTG CATGGAGCAC GCGT GGGG CAGG CATT GGGG CTGAGC  
 ACCT GATGGG CTCATCT CGTG AATC CTGAGG CAGGCC ACAGCAGAGGAGTTA GTGG  
 CACCT GGGG CGAG CAGCAGGAGACTGAGG GTCAGAGTGGAGG CTAAGCTGCC CTGG  
 ACT CCT CAATCT GCCTGCCCTAGTATGAAGCCCCCTCTGCCCTACAAT CCTGA

13732.1

ATGGATCTTACTTTGCCACCCAGGTTGGAGTGCAGTGCTGCAATCTGGCTCACTGCAGCC  
 TTAACCTCCCAGGCTCAAGCTATCCTCCTGCCAAAGCCTTCCACATAGCTGGACTACAGG  
 TACACNGCCACCACACCCAGCTAAAATTTTGATTTTTGATAGAGACGGGATCTGCCAC  
 GTTGCCAGGCTGGTCCCATCTGACCTCAAGCAGATCTGCCACCTCAGCCCCCAACGT  
 GCTAGGATTACAGGC GTGAGCCACCCCACCCAGCCTTGTGTTAATGGAATCACC  
 AGTTCCCTCCGTGCTCAGCACCAGCTGTGAGAAATGTTGCACTGTGACCTTATGA  
 AGGGGAACTCCATGCTGAAAGGGTAGGATTACATGCTCCTGTTCCGGGGTCAAG  
 AAAGCCTCAGACTCCAGCATGATAAGCAGGGTGAG

13732.2

ATAGGGGCTTAAGGAGGGAAATTACGGTCAATGAGGTGTAAGGGCACGGCTTTATCC  
 AGTAAGACTGGGTCTTACATGAGAAAGAGACACCCGAGGTCTTCTGCGGTG  
 AGGATGCAATCAAGAAGGGCCCTCTGCAAGCGAAGGAGAGGGCCACAGAAACCGAC  
 ACTTCACTTGGACTGGCAGGCTCTAGAACCTGAGAAAAATACTGTCGTTGGTTAGCCA  
 CCCAGTTTGACTATCTCTATGGCTTCTAAGCAGACTAACAAACAAACACCCAAAATT  
 AACTGATGGGTTGCTGCTCTGTAATTTGCTATGAGAGAACTTTCACTCACTGTTT  
 GCAGTTTCTCCTCAGTCCCTGGTTCTCTCTCACATAATCCAAATTCAATTATAGTTC  
 ATGGCCCAGGCAGAGTCATTCAACCCATCTCTGAGCTAAACCAAGCACCTGCTCTGCT  
 CACTTCTGACTGGCTCTCATCATCACCCCTCTGCAGAGATTCAATTCTCCCGTGCCA  
 GGTACTTCACCCACCAAGCTCA

*FIG. 1M*

13735.1

GGATAATGAAAGTTGTTTATTAAGCTTGGACAAAAGGCATATCCCTCTATTTCCTTATA  
 ACAAAATATCCCCAAAATAAGCAAGCATATATCTGAATGTGTAATAATCCAGTGATA  
 ACAAAGAGCAGTACTTTAAAGAAAAAAATATGTTTCTGTCAAGGTTAAATGAGAA  
 TCAAAACCATTACTCTGCTAACCTATTTTTGCCTTCTTTGGTTAAAGAGAGGCAAT  
 GCAATACACTGAAAAGGTTTATCTTATCTGGCATTGGAATTAGACATATTCAAACCCC  
 AGCCCCCATTCCAACCTTAAAGACCACAAACAAGTAATTACTTTCTGAACATTGGTTT  
 TTCTGGAAATGGGAATTATAAAATAGACTTTGCAGACTTTATGAGATTAAATAAGATA  
 ATGTATGAAATTCTTCTCTTTTACTCTTCTTGCCTTGGAGATGGAGTCTCACCCCGT  
 CACCCAGGCTGGAGTACAGTG

13735.2

CCACTGCACCTCCAGCCTGGGTGACGGAGTGAGACTCTGTCTCAAAAAACAAACAA  
 ACAAAACAAAAAAACTGAAAGGAATAGAGTCTCTTCTCATATATGAATATATTATT  
 CAACAGATTGATCACCTTACCATATGTTGTATTGTTCTAATTGCTGGGATACAGCA  
 AGAGGTTCTCAGAACTCATGGAGCATGAAAGTAAATAACAAAGTTAATTCAAGGCC  
 AGGCATGGTTGCTCACACCTTAGTCCCACCACTTTGGGAGGCTGAGGCAGGTGGATCACT  
 TGGGCCAGGAGTTCAAGGCTCCAGTGGCCAAAGATTGTGCCACTACTCTCCAGGCTGGG  
 CAACAGAGCAAGACCCCTGCTCAGGGGAACAAAGTTAATTCAAGATTGTTAAGTG  
 CTGTTAGGAAGTAAATAGGTGATAATTCAAGAGAGCCTGAAGGCCAGGCGTGGTGGC  
 TCACGCCCTGGTCTAACGCTTGGGAAGCCAGCGGGGAGTACAAGGTCAAGGAGAA  
 TTTGGCCAGGCATGGTG

13736.1

AGAATCCATTATTGGGTTAAACTAGTACACAACTGAAATCACTTGGCACTACTTTA  
 TACAGGGATTACGCCCTGTGATGCCGACACTTAAATACTCTACCAAGGACACTGCTGTGCT  
 TAGGTCTGATTCACTCATTCAGCATGTAGATACTAAAAATATACTGTAGTGTCTTAA  
 GGAAGACTGTACAGGGTGTGTTGCAAGATGACATTCAACAAATTGTGAATTATTCACACCC  
 ACAAGATAACCTTCACTCTATAAAACTCTCATAGGCACACATGTGGTAGGATTGAGAG  
 ATGACACAAATAATGTTACATAAAAGTTCAAGACATTCTAATGATAAGTGAACCTGAAAAAA  
 AAAAAGCCACATCTCAATTGTGATAAGATAAAAGAAATAATTAAAAACACAAA  
 AAATGGCATTCACTGGTACAAAGC

13737.1&amp;2

CAAAATTTAAATAAACTTGAACAAAGTTCACAKGAAATAAAATCAAAGTTGCAA  
 AAACGTGAAGGTTAAACTTAAATTGTCAAATAATTCCCTCATGGCCCAAATCACTATTTCCTA  
 TTCTATGCAAAAGTATGCCCTCAACCTTAAATGATATATGATATGATAACACAAACCA  
 GTTTCAAAATAGTAAAGCCACTCATCTGCAATTCTAAGAAATAAGTAAAGATTATAAG  
 ACACCTTACACACACACACACACACACACACACACACACACACACACAC  
 AATTGGCCTCTCTAAATAAGAACATGAAAGACCTTAATTGCTGCCAGGAGGGAAACAC  
 TGTGTGACCCCTCCCTACAAATCCAGGTACTTTCTTAAATCCAAATACCAAAATCTGGGATAT  
 TTGAGAGGAGTGAATTCTGACACGCCACGCTTGAAATCCCTGTGGGAACCATTCATGTCCACC  
 CACTGGTGCCTGAAAAATGCCAAATAATTTCGCTCCCACTTCTGCTGTGTCTTCCA  
 CATCTCACATAGACCCCCAGACCCCGCTGGGCTGGGATCGCATTGCTGGTAGAGGC  
 AAGTCATAGGTCTGTCTTGAAGTCACAGAAGCGATAACACCAAAATTGCCCTGGTCGGTCAT  
 TGTCATAACCGAG

FIG. IN

13738.1

TTGACTTTAGTAGGGTCTGAACATTTATTTACTTTGCCMGTAAATTAAACCCYTATA  
 TATCTTTCATTTATGCCATCTTATCTTCAATGBCAAGGGAACAGWTGCTAAMCTGGCTCT  
 GCATTWATCACATTAACCGGGTCTTGAAAATCTCTTGATATGAATAAAGGATCTT  
 TTAVAGCCATCATTTAAGCMIGNTCTCCAACACGGAGTCTGCTSASGGGGKGAGCT  
 GTGAACCTGGCTGAAGGCTTCCCATAACACACTGCAATGACMTGGTTCTGACCAGBGTG  
 AGTTA

13738.2

AGAGAAGCCCCATAAAATGCAATCAGTGTGGGAAGGCCTTCAGTCAGAGCTCAAGCCTTT  
 CCTCCATCATCGGGTCAACTGGAGAGAACCCATGTATGTAATGAATGCGCAGAGCC  
 TTGGTTTAACTCTCATCTTACTGAACACGTAAGGATCACACAGGAGAAAAACCCATG  
 TTGTAATGAGTGGGGAAAGCCTTCTCGGAGTTCCACTCTTGTTCAGCATTGAAAGAGT  
 TCACACTGGGGAGAACCCCTACCAAGTCCGTTGAATGTGGGAAAGCTTCAAGCAGAGCTC  
 CCAGCTCACCCATCATCAGCCGAGGTACACTGGAGAGAACCCATGACTGTGGTACTG  
 TGGAAGGCCCTCAGCCCGAGGTCAACCCCTACAGCATCAGAAAGTCAACAGGGAGA  
 GACTCGTAAGTCCAGAAACATGGTCCAGCCTTGTTCATGGCTCCAGCCTCACAGCAGAT  
 GGACAGATTCCACTGGAGAGAACCCAGGAGAACCTTAAACCATGGTCAAATCTCATT  
 CTGCGCTGGACAGTTC

13739.1&amp;2

GAGACAGGCTCTCACTTTGTCAACCCAGGCTCGAAATGCACTGGTGGATCTTACGTAGCTCA  
 CTGAGCCCTGACCTCTGCACTCAACAAATTCTCTGCTCAGCCCTGCAAGTACGTGGG  
 ACTGTGGGTGCACTGCCACCATGCCCTGCTAACTTTGTAGTTTTGTAAAGATGGGGTTTT  
 GCCATGTTGCACATCCTGGCTTGTAACTCTGAGCTCAAACGATCTGCCACCTCGGCCCTC  
 CCAGAATGTTGGGATTACAGGGTAAACCAACACGCTGGCCCCATTAGGTAITCTTACG  
 ATCCACTTGCTACTGAGATAATCATAAAGAGATGATAAGGACTGGAGAAAGAAAAAATTTT  
 ACTAGCCTTGTGATATTCTTCTTACCTTATACAGAGGATTGGATCTTATGTTTCTC  
 CTTAACTCATAATAAAACATTGAAACCAAAATAGTTTACCTGAGATTACAGAGATAAC  
 CGGCATCACTCCCTGCTCAATTCCAGTTTACCAATCAATTATTTACAGGGTGCAGGA  
 TAAAGCCATTAGTCTGTTGGCACTTTCTCAGCTTTGTAAACCTGTTGCCTGACA  
 AATGGAATTGACAGCGTATGCCATGCAATTCCATTGTCAAGGCATACGGTGTCAATT  
 CCACCAATCCCTGTCTCTTGGAGAGATCTTATCAGCTAGTCTTGGCAAAAGTA  
 ATTGCAACTCTCTAGGTATCTATTGTCGTTCACTGCTGGAAACCCCTGGGACCAGGA  
 CTAAAACCTCCAG

13741.1

ATCTCATATATAATTTCTTCTGACTTTATTTGCTTGTCTGNCACCCATTAAAATAC  
 ACAGAGACCAAAATAGAGGGCTTCTGGTGGAACGGCATGGCACTCACAGGACAAAATAC  
 AAAACTAGGGGGCTCTGTCTCTCATACATCATACAATTTCAGTATTTTTATGTACA  
 AAGAGCTACTCTATCTGAAAAAAATAAATAAATGAGACAAAGATAGTTTATGCATC  
 CTAGCAAGAAAGAATGGGAAAGAAAGAACGGGGAGTTGGTACAGATTCTGCCCCGT  
 ·TCCCAGGGACCACCTCTGCCACTGAGTTCCCCACAGCTCACCCATGTCACA  
 GGGCAAGTGCCAGGGTAGCTGGGACCACTGGAGACAGGAACCAACATACTTGGC  
 CTGGAAGATAAGGAGAAAGTCTCAGAAACACACTGCTGGGAAGCAATCCCACNGGGCGT  
 GCCCCANGAGCTTCCCACCTGCTGCTGCTGCTGCTGGTGGCTTGGGAACAGCTTGGGAG  
 GCCCTTGGGTGGGNCCAACGGCCCTTGGGCCCCGTGTGGAAAG

FIG. 10

13742.1

AAACATTGAGATGGAATGATAGGGTTCCCAAAGAACAGGCCATATTTAACTAAATGAA  
 AATTATGATTATAGCCTTCTCAAAATACCTGCATACTTGATATCTCAACCAGAGCTAATT  
 TACCTCTTACAATTAATAAGCAAGTAACTGGATCCACAATTATAATACCTGTCAATT  
 TTCTGTATTAAACCTCTATCATAGTTAACCTATTAGGGTACTTAATCCTTACAATAA  
 ACAGGTTAAAATCACCTCAATAGGCAACTGCCCTCTGGTTTCTCTTGACTAAACAAT  
 CTGAATGCTTAAGATTTCACTTGGGTCTAGCAGTACAGTGTACACTCTGTATTCC  
 AGACTTCATAATTATAGAAAAAGGAATGTACACTTTGTATTCTTGAGCAGGGCG  
 GGAGGCAACATCATCACCATGGTAGGGACTTGTATGCATGGACTACTTTA

14351.1

ACTCTGCGCCCAAGGCTGGAGCCCCATGGMCCATCTGACTCCCTGCAAGCTMCCCTC  
 ACAGGWTCACTGCCATTCTCCTGCCTCAGCATTGGAGTAGCTGGACTACAGGCCAGC  
 CACCATGCCAGCTAATT

14351.2

ACCTTAAAGACATAGGAGAAATTATACTGGAGAGAAACCTTACAAATGTAAGGTTCTG  
 ACAAGACTGGGAGTGAATCACACCTGGAAACACATACTGGACTTCACACTGGABAGAAA  
 CCTTACAAGTGTAAATGACTGTGCCAACCCCTTGCCAAGCAGTCAACACTTATTACCCATC  
 AGGCAATTCA

14354.2

AGTCAGGATCATGATGGCTCAGTTCCACAGCGATGAATGGAGGGCCAAATATGTTGGC  
 TATTACATCTGAAGAACCTACTAACCGATGATAACAGTTGATAACCTCAACCTTCAGGA  
 GTTACATAACAGGTGATCAAGCCCTACTTTTCTACAGTCAGGTCTGCCGGCCCCGG  
 TTTAGCTGAAATATGGCCCTTATCAGATCTGAAACAGGATGGGAAGATGGACCAGGAAG  
 AGTTCTCTATAGCTATGAAACCTCACTGAAAGTTGAGGGCCAACACTGCCCTGTAGT  
 CCTCCCTCTATCATGAAACACCCCTATGTTCTCCACTAATCTCTGCTCGTTTGGGA  
 TGGGAAGCATGCCAACTCTCTGATCAGCCATTGCCCTCAGTTGCACCTATAGCAAC  
 ACCCTGTCTCTGCTACTTCAGGGACCAGTATCCCTCCCTAATGATGCCCTGCT

14354.1

CTTCGATTTCTTCAATTGTCACGTTGATTTATGAAGTTCTCAAGGGCTAACTGCTG  
 TGTAATTATAGCTTCTCTGAGTCTTCAGCTGATTGTTAAATGAATCCATTCTGAGAGCT  
 TAGATGCACTTTCTTCAAGAGGATCTAAATGTTCTTAAAGCTTTGGCATAAATTCTCC  
 TTCTGATGACTTTCTATGAACTTAACTGAACTGATCTCTGAAATCAGGTGTGTTACTGAGCTGCAT  
 GTTTTAATTCTTCGTTAATAGCTGCTCTCAGGGACCAGATAGATAAGCTTATTTGAT  
 ATCCCTAAGCTCTGGTGAAGTTGTCGATTCCATAATTCCAGGTCAACACTGGTTATCC  
 CAAACTCT

16431.1.2

GTGGAGGTGAAACGGAGGCAGAAGAAAGGGGGTACCTCAGGAGCGAGGGACAAAGGGGGC  
 GTGAGGCACCTAGGCCCGGGCACCCCGGCAGGAAGCGCTCTGAACCAGGGTACCGG  
 GTAGGGGAAGGGCCCGCGTAGTCCTCGCAGGGCCCCAGAGCTGGAGTCGGCTCACAGCC  
 CCGGGCCGTGGCTTCACTTCCTGGACCTCCCAGGGCCCTGAGGACTGGCTCG  
 GCGGAGGGAGAAGAGGAAACAGACTTGAGCAGCTCCCTTGTCTCGAACCTCACTGCC  
 GAGGAACCTCATTTCTCCCTCGCTCCITCACCCCCACCTCATGTAGAAAGGTGCTGAA  
 CGCTTGGTGGCGTGGAGTTGGGTTGGGGGTTGGGGTTCTTTTGAGTGCT  
 GGGGAACCTTTTCCCTTCAGGTAGGGAAAGGAATGCCAATTCAGAGAGACAT  
 GGGGCAAGAAGGACGGGAGTGGAGGAGCTCTGAACTTGCAGCCGTATCGGGAGG  
 CGCAGCTCTAACAGCAGAGAGCGTCACCGCTGGTATCGAAGCACAAGCGGCATAAGTC  
 CAAACACTCCAAGACATGGGGTTGGTGAACCCCGAAGCAGCATTCCGGCACAGTTAT  
 CAAACCTTGGTGGAGTAATGATGATATCAGCTCTGATTCCGACACCTCTCCGATGACATG  
 GCCTCAAAACTAGACCGAAGGGAGAACGACGAACGTCTGGATCAGATCGGAGCGACCGC  
 CTGCACAAACATCGTCACCAACAGCACAGGCGTCCGGGACTTACTAAAAGCTAAACAG  
 ACCG

16432-1

GACATGTTGCCCTGCAGGGGACCCAGACACAAATGGGATTAGCCAGTGCTCACTGTTCTTAT  
 CCTTCAGAGAGGATGGGGACAGCTCTCAGGTAGAAATCCAGGCTGAGAAGGCCATGCTG  
 GTTGGGGCCCCCGGAAGCACGGTCCCGATCTCCCTGGCATCAGCGTAGACCCGCTGCTC  
 AGGCTTGGGGTACCAAACCTCATGCTCTGACTGTTTGGCCCCATGCGGTAGAGGAAAAC  
 CTAGAAAAAGATTGTCGTGCTAAGGAATCAAGCTGCCCCCTCATCTCCCGATCCAATGCT  
 GGTGACAACATAATCCCTCTCCCAAGGACACAGACTCGGTGACTCCACACTGGCTGACTGG  
 CCTCTGGAGGCTCGTGGCTAACGGCAGGGCTCCGTAGGGCTGATGGCTGAACTGGCTGG  
 GGTGAGGGTTCTGACCCCTCCCTCCATACCGCTGTCAATGAGCTCACACTGT  
 GGTCA

16432-2

GATGGCATGGTCGTTGCTAAATGTGCGCTGGATGGAGCACTTCTCTGTAGGCCAGG  
 GGACCCGCTGTCCCTGGACCTTGGGGCAAGGAGGGAAAGAGTGATACCAGGAAGGTGGG  
 GCTGCAGCCAGGGCCAGAGTCAGTTCAAGGAGCTGGTCTCCGCCCTCAAGCTCTCCG  
 GGGACTGCTCAGGAGTGATGGTCCCTGGAGTTGGCCCAACTTCCCTGGCACCCCTGGAA  
 GGTGCCCTGGCTGCTCCAGGCTCTAGGCTGGGCTGATGGTTCTCCAGGACACAAGTATC  
 ATAAAGCCACCCCTCTCCCTAGCTTGCAAGGGCCACATGTGGGACAGGCTGTGCTCACAA  
 CCCCTCCCTGCCCTGCCCTCACTAGGACGGAGCACTGGAAACCTTCCGAAGCTCCAG  
 CATCTCAGGAGCCCTCAAAAGCTCTGGGGCAAGCTCTGGTTCTCTGACTGGAGCTCA  
 TCTGGGCTGGCTGCTCTCTCGC

17184.3

TAAAAAAGTGTAAACAAAGGTTATTTAGACTTTCTCATGCCCTCAGATCCAGGATGTCTA  
 TGTAACCGTTATCTTACAAAGAACAAATTTGGTATAAAACTAAGTCAGTGACTTGC  
 TTAACTGAAATAGCGTCCATCCAAAGTCGCTTTAAGGTAAAACCTACCTGACGATTTGGC  
 GGGGATCTGCACTTGGACTCTGCCCTGGTTGTCAAGGGTCCCGCTGTTCTGGC  
 ACTCATGGGGACAGGCATCTGCTCGTGTGGGGCCCCCGTGGAGCCCTAACGTGAAGGT  
 GAAGGTATCGACCACTACGGGCTAGGGCACTGGACCTTACCTGGAACTAAACAGGG  
 TCGGGGAGAGGCCTTGGCTATGTGGC

*FIG. 10*

17184.4

CAAGCGTTCTTATGGATGTAATTCAAACAGTCATGCTGAGCCATCCCCGGCTGACAGT  
 CACGTTWAAGACACTAGGTGGGGGCCACAGTGCACCCAGGAGAAGAAGAATTGGA  
 ATTTCATGAAGATGACGGAAATCTGATGTTGAATATGAAAATGGCCCCAAATGGAA  
 TTCCAAAAGGTTACCACAGGGGCTGTAAGACCTAGTGACCTCCTAAGTGGGAAAGAGGA  
 ATGGAGAAAGTAGTATTCTGATGCAATCAAGAACATCAGAAATAAAACTGAGATCATATG  
 AAGGAAAATTCCATATCCAATATGAGTTTACTCAGAGACAGTAGAAACTATTCCCAGG

17185.1

TAGGAATAACAAAATGTTATTCAAGAAATGGATAAGTAATACATAATCACCCCTCATCTCTT  
 AATGCCCCCTCTCTCTGCACAGGAGACACAGATGGTAACATAGAGGCATGGAA  
 GTGGAGGAGGACACAGGACTAGCCCACCCACCTCTCTCCCGTCTCCAAGATGACTGCT  
 TATAGAGTGGAGGAGGCAACAGCTCCCCCTCAATGATACAGATGGTACCTATAGCACCA  
 GCTCCAGATGGGCACGTGGTCTGAGCTGACTCAATGAAACTCTGTGACAACCAGAAGAT  
 ACCTGCTTGGGATGAGAGGGAGGATAAAGCCATGCAAGGGAGGATATTACCATCCTAC  
 CCTAAGCACAGTGCAGCAGTGAGCCCCGGCTCCAGTACCTGAAAAACCAAGGCTAC  
 TGNCCTTGGATGCTCTCTGGCCACG

17188.2

AAGCCCTCTGCCCTGGAAATCTGGAGCCCTTGGAGCTGAGCTGGACGGGGCAGGGAGGG  
 GCTGAGAGGCAAGACCGTCTCCCTCTCTGCACCTGCTCCACCCAGCCACTGCTGGGC  
 ACAGCAGAAACGCCACCAAGAAAATGGAGGAGGAGACTCTTAGCCCTGGAGCTGAGG  
 CTGCCCTCTGGGCTGACCCGCTGCCCTGACCTGAGGAGACTCTTAGCCCTGGAGCTGAGG  
 ATTTGAGGCCACGGTGGAGGAAAGGGAGGCCAACAGAGGAAAACCTATTCTGCTGTGAC  
 AACACAGCCCTTGTCCCACCCAGGCTAAGTGCACGGAGCGTGTGAAGTCAGGCAGGGAG  
 TCGGGGAGGACGAGGTAACTCAGCAGCAATGTCACCTTGAGCCTATGGGCTCAATGCC  
 CGGAGGGGAGCAACCCCCCCCACACGTCAAGCCACAGCACTGCCCTGCAAGGCACCAAG  
 AGAGCGATGACTGAGGACTTGAGCCCCGTGTC

17190.1

GTTTGGCAGAAGACATGTTAATAACATTATCATATTTAAAAAATACAGCAACAAATTCTCT  
 ATCTGTCACCATCTTGCCTTCCCTTCTGGGGCTGAGGCAGACAAAGGAAGGTAATGA  
 GGTTAGGGCCCCCAAGCGGGCTAAGTGCTATTGGCCTGCTCTGCTCAAGAGAGGCCATA  
 GCCAGCTGGCACGGCCCCCTAGCCCTCCAGGTTGCTGAGGGGGCAGGGCTGCTAGAGT  
 TCTTCACTCAGCCGTGGGCTGAGCTCTCAGGGAGAACTCTGCAACCAGGCCCTGCTCTA  
 CGGCCAGAAAGAGGTGGACCCCTGAGAACGGAAACATCCATACCTCCAGGGCC  
 CCAGGGCTTCTCCTCTTCTGCTGCTGCCAATTCACTGCTGAGGGGGCTGCCCCGGCCAG  
 GTAGTCAGCSTTGTAGAACCAAGCCCTCCAGAAGCTGCCCCGTCAATCTCCCCGCTATA  
 GGAGCCCCCCCAGGGAGGGGCTGAGCACC

*FIG. IR*

17190.2

CAAGTTGAACGTCAAGCTTGGCAGAGGTGGAGTGTAGATGAAAACAAGGTGTGATTATG  
AAGAGGATGTGAGTCCTTGGGTGAGGAGAGAAAGGCTTGTGAGCTCTATTCAAGAT  
ACTTTACCTGTGCAAAAAGCACATTCCACCTCCTCTCATGGCATTGTGTAAGGTGAG  
TATGATTCCTATTCCATCTGCATTTAGAGGTGAAGAATAACGTACAAGGGATTCACTGAT  
TAGCAAGGGACCCCTCACTAAGTGTGATGGAGTTAGGAGAGCTCAGCTGTTGAATCT  
CAGAGCCCAGGCAGCTGGAGCTGGGTAGGATECTGGAGCTGGCACTAATGTGAGGTGCAT  
TCCCTCCAACCCAGGCTCAGATCCGGAACCTGACCGTGTGACCCCCGAAGGGGAGGCAG  
GGCTGAGCTGGCCGTTGGCTCCCTGCTCCTTACACACCACACTCTCGTTGAGGTGCTG  
GGCTGGACTACTCACAGAGCAGC

17191.2&amp;89.2

TGGCCTGGCAGGATTGGGAGAGAGGTAGCTACCCGGATGCAGTCCTTGGGATGAAGAC  
TATAGGGTATGACCCCATCACTTCCCCAGAGGTCTCGGCCCTCTGGTGTGAGCAGCTG  
CCCCCTGGAGGAGATCTGGCTCTCTGTGATTCATCACTGTGACACTCTCTGCCCTC  
CACGACAGGCTTGTGAATGACAACACCTTGGCCAGTGCAGAAGGGGGTGGTGTGGT  
GAACCTGTCCCCGTGGAGGGATCGTGGACGAAGGGGCCCTGCTCCGGGCCCTGCACTGG  
CCAGTGTCGGGGGCTGCACTGGACGTGTTACGGAAGAGCCGCCACGGGACCGGGCTT  
GGTGGACCATGAGAATGTCACTGCTCCCCACCTGGGTGCCACCAAGGAGGCTCA  
GAGCCGCTGGGGAGGAAAATTGCTGTTCACTGGACATGGTAAGGGAAATCTCT  
CACCCCCCTTGTGAATGCCAGGCCCTT

*FIG. 1S*

ACCCAGATGCCGTGAGACCTGCCAAGAACGAAAGTCAGGATCATGATGGCTCAGTTTCCCACAG  
CGATGAATGGAGGGCCAAAATATGTGGCTATTACATCTGAAGAACGACTAAGCATGATA  
AACAGTTGATAACCTCAAAACCTTCAGGAGGTTACATAACAGGTGATCAAGCCCGTACTTT  
TTTCCTACAGTCAGGTCTGCCGGCCCCGGTTTAGCTGAATATGGCCCTATCAGATCTG  
AACAAAGGATGGAAAGATGGACCACCAAGAGTTCTCTATAGCTATGAAACTCATCAAGTTA  
AAGTTGCAGGGCCAAACAGCTGCCGTAGTCCTCCCTCCTATCATGAAACAACCCCTATG  
TCTCTCCACTAATCTCTGCTCGTTTGGGATGGGAAGCATGCCAATCTGTCCTCATCAG  
CCATTGCCCTCAGTTGCACCTATAGCAACACCCCTGCTCTGCTACTTCAGGGACCAGTAT  
TCCTCCCTAATGATGCCCTGCCCTAGTCCTCTGTTAGTACATCCTCATTACCAAATG  
GAACTGCCAGTCTCATTCAGCCTTATCCATTCCCTTATCTCTTCAACATTGCCCTATGCA  
TCATCTTACAGCCTGATGATGGGAGGATTGGTGGTCTAGTATCCAGAAGGCCAGTCTC  
TGATTGATTTAGGATCTAGTAGCTCAACTTCCTCAACTGCTCCCTCTCAGGGAACTCACCT  
AAGACAGGGACCTCAGAGTGGGCAGTCCTCAGGTTCAAGATTAAGTATCGGCAAAAA  
TTAATAGTCTAGACAAAGGCATGACGGGATACCTCTCAGGTTTCAAGCTAGAAATGCC  
TTCTTCACTCAAAATCTCTCTCAAACTCAGCTAGCTACTATTGGACTCTGGCTGACATCGAT  
GGTGACGGACAGTTGAAAGCTGAAGAAATTATCTGGCGATGCACCTCACTGACATGCC  
AAAGCTGGACAGCCACTACCACTGACGTTGCCCTCCGAGCTTGTCCCTCATCTTCAGAG  
GGGGAAAGCAAGTTGATCTGTTATGAAACTCTGCCAGTTACTTTGAGGACAAACGGAAAGCCA  
AAAGGCCTCAGAAGAAACTGCCAGTTACTTTGAGGACAAACGGAAAGCCA  
AAAGGAAACATGGACCTGGAGAAGGGACGCCAAGTGTGATGGAGCAGCAGCAGAGGGAG  
GCTGAACGCAAAGCCCAGAAAGAGAAAGGAAGAGTGGAGCGGAACAGAGAGAACTGC  
AAAGAGCAAGAATGGAAGAACGAGCTGAGTTGGAGAAACGTTGGAGAAACAGAGAGAG  
CTGGAGAGACAGCGGGAGGAAGAGAGGAGAAAGGAGATAGAAAGACGAGAGGGAGCAA  
AACAGGACCTGAGACACAAACGGCGTTAGAAATGGGAAAGACTCCGTGGCAGGAGCTGC  
TCAGTCAGAAAGACCAGGAACAGAAAGACATTCAGGCTGAGCTCAGGAAAGAAAGT  
CTCCACCTGAACTGGAAGCACTGAAATGAAAACATCAGCAGATCTCAGGAGACTACAA  
GATGTCCAATCAGAAAGCAAAACACAAAGACTGAGCTAGAAGTTGGATAAACAGTGT  
GACCTGGAAATTATGGAATCACAACACTTCAACAAGAGCTTAAGGAATATCAAATAAG  
CTTATCTATCTGGTCCCTGAGAACAGCTTAAACGAAGAAATTAAAAACATGCACTCA  
GTAACACACCTGAACTGGAAGCAACTTCAAAAAAGTCATCAGAAAGGAAGAAT  
TATGCCAAAGACTTAAAGAACAAATTACATGCTTTGAAAAGAAAAGCTGCACTCAAGCTCT  
CAGAAATGGATTCAATTAAACAAAGACTGAAACGAAACTCAGAGAAAGCTATAATACACAGC  
AGTAGCCCTTGAACAACTTCATAAAATCAAACGTUACAAATTGAAGGGAAATCGAAAGAA  
AAAGATTAGAGCAAAAAA

FIG. 2A

ATGGCAGTGCACATTACCATCATGGGAACCAACCTTCCCTTTCTTCAGGATTCTCTGTAGTG  
GAAGAGAGCACCCAGTGTGGGCTGAAAACATCTGAAAGTAGGGAGAAGAACCTAAAAAT  
AATCAGTATCTCAGAGGGCTCTAAGGTGCCAAGAAGTCTCACTGGACATTAAAGTGCCAA  
CAAAGGCATACTTCGGAATCGCCAAGTCATAACTTCTGCTCTCAGAGAC  
AAAGTGAGACTCAAGAGTCTACTGCTTACTGGCAACTACAGAAAATGGTGTACCCAGA  
AAAACAGGAGCAATTAGAAAATGGTCCAATATTCAAGCTCCGAAACAGGATGTGCTT  
TCCTTGGCCATTAGGGTTCTTCCTTCCCTTCTTATTAAACCACTA

*FIG. 2B*

ATATCTAGAAGTCTGGAGTGAGCAAAACAAGAGCAAGAAACAAAAGAAGCCAAAAGCAG  
AAGGCTCCAATATGAACAAGATAAAATCTATCTCAAAGACATATTAGAAGTTGGAAAAT  
AATTCATGTGAACTAGACAGTCGTTAAGAGTGATAAGTAAATGCACGTGGAGACAAG  
TGCATCCCCAGATCTCAGGGACCTCCCCCTGCCGTGACCTGGGGAGTGAGAGGACAGGAT  
AGTGCATGTCTCTCTGAATTAGTTATATGTGCTGTAATGTTGCTCTGAGGAAGC  
CCCTGGAAAGTCTATCCCAACATACTCCACATCTTATATTCACAAAATTAAGCTGTAGTATG  
TACCCCTAACAGCGCTGCTAATTGACTGCCACTTCGCAACTCAGGGGGCTGCTGATTTAGTA  
ATGGGTCAAATGATTCACTTTTATGATGCTTCAAAGGTGCTTGGCTCTCTTCCAACT  
GACAAAATGCCAAAGTTGAGAAAATGATCATAATTAGCATAAACAGAGCAGTCGGCGA  
CACCGATTATAAAACTGAGCACCTTCTTTAAACAAACAAATGCGGGTTTATTCT  
CAGATGATGTTCATCCGTGAATGGTCCAGGGAGGACCTTCACCTGACTATAAGGCATT  
ATGTCTACACAAGCTCTGAGGCTTCTCTGCAGCTGGTGGACAGCTAACACCTCAGT  
TTCAATAGGATCTAGAGGAGCTGGGACTCAGCTGGGTGATTCGCCCCCATCTCCGGGG  
GAATGTCTGAAGACAATTGTTACCTCAATGAGGGAGTGGAGGAGGATACAGTGCTACT  
ACCAACTAGTGGATAAAGGCCAGGGATGCTGCTAACCTCTACCATGTACAGGACGTCTC  
CCCATTACAACATACCAATCCGAAGTCTCAACTGTGTCAGGACTAACAGAAACCTGGTTTG  
AGTAGAAAAGGGCTGAAAGAGAGGGAGCCAACAAATCTGTCTGCTCTCACATTAGTC  
ATTGGCAAATAAGCATTCTGTCTTGGCTGCTGCTCACACAGAGGCCAGAACTCTA  
TCCGGCACCAGGATAACATCTCTCAGTGAACAGAGTTGACAAGGCCATGGGAAATGCCT  
GATGGGATTATCTTCAGCTTGTGAGCTCTAAGTTCTTCCCTTCATTCACCTGCAAG  
CCAAGTTCTGTAAAGAGAAATGCCCTGAGTTCTAGCTCAGGTTTCTTACTCTGAATTAGATC  
TCCAGACCCCTCTGCCACAACTCAATTAAAGGCAACAAACATATAACCTTCCATGAAGCA  
CACACAGACTTTGAAAGCAAGGACAATGACTGCTGAAATTGAGGCCCTGAGGAATGAAG  
CTTGAAGGAAAGAATACTTTGTTCCAGCCCCCTCCACACTCTCATGTGTTAACAC  
TGCCTTCTGGACCTTGGAGGCCACGGTCACTGTATTACATGTTGTTATAGAAAACGTATTT  
AGAGTTCTGATCGTTCAAGAGAAATGATTAAATACATTCTCA

FIG. 2C

Coll. Lmp	Picture 1	Picture 2	Picture 3	Picture 4	Picture 5	Picture 6	Picture 7	Picture 8	Picture 9	Picture 10	Picture 11	Picture 12	Picture 13	Picture 14	Picture 15
-1.7	265A Ovary 1 (ovules)	277A Brachio-vein	42240100 (420)	421630105 (C.11)	2303	137	50	1430	20	50					
-1.1	265A Ovary Tumor	57 Ovary 11	422720106 (420)	421630105 (C.11)	355	27	54	302	10	54					
-1.0	265A Ovary Tumor	57 Ovary Tumor	422301021 (420)	421630106 (C.11)	1290	60	51	707	10	51					
-0.1	265A Ovary Tumor	S22 Previous 11	42240100 (420)	421630108 (C.11)	850	440	62	1100	20	62					
-1.2	305A	S40	42240100 (420)	421630108 (C.11)	510	18	50	619	20	50					
-1.7	265A Ovary Tumor	C15 Hand 14	42201024 (420)	421630106 (C.11)	1042	100	30	371	20	53					
-1.4	S25 Ovary Tumor	C14 Bone Marrow 14	42210119 (420)	421630106 (C.11)	2305	140	63	409	20	53					
-0.1	S22 Ovary Tumor	C10 Intestine 14	422701009 (420)	421630106 (C.11)	531	35	53	743	20	53					
-1.9	S22 Ovary Tumor	C10 Intestine 14	422601027 (420)	421630106 (C.11)	1400	75	55	865	20	55					
-0.2	19004 14	C10 S. P.	422701002 (420)	421630106 (C.11)	453	33	68	857	20	57					
-1.5	262A Ovary Tumor	200A Lung Adenoma 14	422601022 (420)	421630108 (C.11)	1082	122	57	594	20	57					
-1.1	S115	C110	422601022 (420)	421630106 (C.11)	1400	75	55	865	20	55					
-1.1	26004 Ovary Tumor	C112 Lung 14	422501004 (420)	421630108 (C.11)	500	34	51	573	20	51					
-2.1	2611 A Ovary Tumor	S20 Stomach 14	422601020 (420)	421630106 (C.11)	700	45	54	881	20	54					
-1.0	2623 Ovary Tumor	S55 Small Cell 14	422601020 (420)	421630106 (C.11)	625	45	46	1135	20	46					
-1.0	265A	270A	422601021 (420)	421630106 (C.11)	3005	222	50	502	20	50					
-1.0	26134	I2	422601020 (420)	421630106 (C.11)	2251	147	46	1256	20	46					
-0.6	265A Ovary 1	S21 Endometrium	422601020 (420)	421630106 (C.11)	552	34	72	1039	20	52					
-3.5	263A Ovary Tumor	S25X Endometrium	422601017 (420)	421630105 (C.11)	6126	358	50	1449	20	50					
-1.3	302A	S73 Bladder 14	422104053 (420)	421630108 (C.11)	439	32	61	1531	20	51					
-1.0	265A	C119	422001010 (420)	421630106 (C.11)	397	32	50	1270	20	50					
		S27	422501003 (420)	421630106 (C.11)	4742	222	58	603	20	58					

FIG. 3

TCGAGCGGCCGCCCCGGCAGGTCTTCAAGACTTGGACTGTGTACACTGCCAGGCTTCCAG  
GGCTCCAACCTGCAGACGGCCTGTTGGGACAGTCTCTGTAATCGCGAAAGCAACCATG  
GAAGACCTGGGGAAAACACCATGGTTTATCCACCCCTGAGATCTTGAACAACCTCATCT  
CTCAGCGTGC0GAGGGAGGCTCTGGACTGGATATTCTACCTCGGCCGCGACCAAGCT

*FIG. 4*

TAGCGYGGTCCGGGCGAGGYCTGCTTYCTGTCCAGCCCAGGGCCTGTGGGGTCAGGGC  
GGTGGGTGCAGATGGCATCCACTCCGGTGGCTTCCCCATCTTCTCTGGCCTGAGCAAGGT  
CAGCCTGCAGCCAGAGTACAGAGGGCCAACACTGGTGTCTTGAAACAAGGGCCTAGCAG  
GCCCTGAAGGRCCCTCTGTAGTGTGAACCTCCTGGAGGCCAGGCCACATGTCTCCTCAT  
ACCGCAGGYTAGYGATGGTGAAGTTGAGGGTGAAATAGTATTMANGRAGATGGCTGGCA  
RACCTGCCCGGGCGGCCGCTCSAAATCC

*FIG. 5*

AGCGTGGTCGCGGCCGAGGTGCTCTTCAGGGTCTGCTTATGCCCTTGTCAAGAACACCAAG  
TGTCAAGCTCTCTGTACTCTGGTTGCAGACTGACCTTGCTCAGGCCCTGAGAAGGATGGGGCA  
GCCACCCAGAGTGGATGCTGTCTGCACCCATCGTCTGACCCAAAAGCCCTGGACTGGACA  
GAGAGCGGCTGTACTGGAAGCTGAGCCAGCTGACCCACGGCATCACTGAGCTGGCCCCCT  
ACACCCCTGGACAGGGACAGTCTCTATGTCAATGGTTTACCCATGGAGCTCTGTACCCAC  
CACCAGCACCGGGGTGGTCAGCGAGGAGCCATTCAACCTGCCCCGGCGGCCGCTCGA

*FIG. 6*

27 / 92

**A**

TTGGGGNTT, MGAGCGGCCGCCC GGCAAGGTACCGGGTGGTCAGCGAGGAAGCCATTAC  
ACTGAACCTCACCATACAACACCTGCCTATGAGGAGAACATGCAGCACCCCTGGCTCCAG  
GAAGTTCAACACCACGGAGAGGGTCTTCAGGGCTGCTCAGGTCCCTGTTCAAGAGCAC  
CAGTGTGGCCTCTGTACTCTGGCTGCAAGACTGACTTTGCTCAGACTTGAGAAACATGGG  
GCAGCCACTGGAGTGGACGCCATCTGCACCCCTCCGCTTGAATCCCAC TGTCCTGGACTGG  
ACAGAGAGCGGCTATACTGGGAGCTGAGCCAGTCCCTGGCGGNGACNNCTT

**B**

AGCGTGGTGGCGGGCCGAGGTCCAGTCGAGCATGCTCTCTCTGCCACTGGCACAGTG  
AGGAAGATCTCTGCTGTCACTGAGAAGGCTGTATCCACTGAGATGGCAGTCAAAAGTGC  
ATTAATACACCTAACGTATCGAACATCATAGCTGGCCAGGTTATCTCATATGTGCTCA  
GAACACTTACAATAGCCTGCAGACCTGCCCGGGCGGCCGCTCGA

*FIG. 7A and 7B*

TGTGGTGTGAACTTCCTGGAGNCAGGGTACCCATGTCCTCCCCATACTGCAGGTGGTG  
ATGGTGAAGTTGAGGGTGAATGGTACCAGGAGAGGGCAGCAGCCAATTGTSRGCKG  
SMGMSSGAGGMWGGWGTYYCWAGGTTCYRARRTCACTGTGGAGGTCCCAGGAGTGCT  
GGTGGTGGGACAGAGSTCYGATGGGTGAAACCATTGACATAGAGACTGTTCTGTCCAG  
GGTGTAGGGCCCAGCTTYRATGYCATTGGYCAGTTKGCTYAGCTCCAGTACAGCCRC  
TCTCKGYYGMGWCCAGSGCTTTGGGTCAAGATGATGGATGCAGATGGCATCCACTCCA  
GTGGCTGCTCCATCCTCTCGGACCTGAGAGAGGTCACTGAGCCAGAGTACAGAGGG  
CCAAACACTGGTGTCTTGAATA

*FIG. 8*

TCGAGCGGCCGGCAGGTCAAGGAAGCACATTGGTCTTAGAGCCACTGCCTCCTGGA  
TTCCACCTGTGCTGCCAACATCTCCAGGGAGTGCAGAAGGGAAAGCAGGTCAAATGCTCA  
GATCAGTCAGACTGGCTGTTCTCAGTTCTCACCTGAGCAAGGTCACTGAGCCAGAGTA  
CAGAGGGCCAACACTGGTGTTGAACAAGGGCTTGAGCAGACCTGCAGAACCCCTCTTC  
CGTGGTGTGAACCTCTGGAAACCAGGGTGTGCATGTTTCTCATATAATGCAAGGTG  
GTGATGG

*FIG. 9*

Gene Name	Sample Name	Sample Name	P1	P2	Probe 2 Name	OBH Value	OBH Value	Probe1 Value	Probe2 Value	S/B A%	S/B A%	Probe2 S/B
-2100008 (0)	170 205A Ovary Tumor	170 205A Ovary N	-1.21000000	8620	1240	57.7	65	2.2	65			
-2100008 (0)	170 205A Ovary Tumor	170 205A Ovary N	-1.21000028	5894	6042	35.3	89	3.9	89			
-2100008 (0)	170 205A Ovary Tumor	170 205A Ovary N	-1.21X00007	6215	2021	30.1	71	2.6	71			
-2100008 (0)	170 205A Ovary Tumor	170 205A Ovary N	-1.22X00011	7467	6480	54.0	71	9.7	71			
-2100008 (0)	170 205A Ovary Tumor	170 205A Ovary N	-1.23000021	7302	2146	39.2	81	4.5	81			
-2100008 (0)	170 205A Ovary Tumor	170 205A Ovary N	-1.23000049	5714	1111	20.4	81	2.6	81			
-2100008 (0)	170 205A Ovary Tumor	170 205A Ovary N	-1.23000049	2615	814	12.1	75	2.1	75			
-2100008 (0)	170 205A Ovary Tumor	170 205A Ovary N	-1.23000048	4578	6754	25.0	69	2.4	69			
-2100008 (0)	170 205A Ovary Tumor	170 205A Ovary N	-1.23000049	7904	3596	18.5	81	3.6	81			
-2100008 (0)	170 205A Ovary Tumor	170 205A Ovary N	-1.23000049	2191	1001	14.0	90	2.9	90			
-2100008 (0)	170 205A Ovary Tumor	170 205A Ovary N	-1.23000049	1979	971	10.4	81	2.7	81			
-2100008 (0)	170 205A Ovary Tumor	170 205A Ovary N	-1.23000024	1911	963	14.0	91	1.4	91			
-2100008 (0)	170 205A Ovary Tumor	170 205A Ovary N	-1.23000046	1666	817	9.0	100	1.0	100			
-2100008 (0)	170 205A Ovary Tumor	170 205A Ovary N	-1.23000042	1827	1380	13.4	97	9.5	97			
-2100008 (0)	170 205A Ovary Tumor	170 205A Ovary N	-1.23000041	903	1634	10.4	88	6.0	88			
-2100008 (0)	170 205A Ovary Tumor	170 205A Ovary N	-1.23000041	1019	1274	11.9	90	2.6	90			
-2100008 (0)	170 205A Ovary Tumor	170 205A Ovary N	-1.23000047	1716	1072	11.0	92	4.0	92			
-2100008 (0)	170 205A Ovary Tumor	170 205A Ovary N	-1.23000042	1204	1074	21.0	94	7.7	94			
-2100008 (0)	170 205A Ovary Tumor	170 205A Ovary N	-1.23000022	3092	2101	16.6	89	4.0	89			
-2100008 (0)	170 205A Ovary Tumor	170 205A Ovary N	-1.23000019	1641	1297	9.6	90	3.1	90			
-2100008 (0)	170 205A Ovary Tumor	170 205A Ovary N	-1.23000044	2524	2084	22.0	65	24.9	65			
-2100008 (0)	170 205A Ovary Tumor	170 205A Ovary N	-1.23000040	1661	109	88	88	2.3	88			
-2100008 (0)	170 205A Ovary Tumor	170 205A Ovary N	-1.23000028	1840	1474	10.7	97	1.8	97			
-2100008 (0)	170 205A Ovary Tumor	170 205A Ovary N	-1.23000020	1429	1204	9.1	90	3.5	90			

FIG. 10

Gene Name	Baf Probe 1		Probe 2		OES		Probe1		Probe2		Probe1		Probe2	
	End Name	P1	P2	Name	SI	Value	SI	Value	SI	Value	SI	Value	SI	Value
4200081 [C]	416.8 485A Ovary T'	391	Baf tissue	-122X06017	26711	1424	101.3	54	2.0	54	179	65.3	119	68
4200081 [C]	411.5 S21 Ovary Tumor	SS6	Spinal Caud N	-122X0628	13559	1179	67.1	68	1.9	68	1179	67.1	61	56
4200081 [C]	411.4 476A Ovary T' tumor	415A	Aorta N	-122X0611	14125	1271	67.1	61	56	61	14125	1271	61	56
4200081 [C]	410.8 205A Ovary T'	415A	Liver N	-122X0620	16121	1488	91.1	41	2.1	2.1	16121	1488	91.1	41
4200081 [C]	410.1 267A Ovary Tumor	415A	Breast N	-122X0624	11126	2245	58.2	68	4.1	68	11126	2245	58.2	68
4200081 [C]	410.0 96A Ovary T' tumor	415A	Endothelial cell	-122X0603	6584	1424	24.5	40	2.1	40	6584	1424	24.5	40
4200081 [C]	410.0 264A Ovary T' tumor	SP	Pancreas fl	-122X0619	9865	2245	40.9	64	4.6	4.6	9865	2245	40.9	64
4200081 [C]	410.0 476A Ovary T'	415A	Ovary N	-122X0614	28014	638	22.6	60	7.1	7.1	28014	638	22.6	60
4200081 [C]	410.0 511S Ovary T' tumor	S10	Stomach smooth muscle	-122X0624	8271	1099	39.5	68	4.6	4.6	8271	1099	39.5	68
4200081 [C]	410.0 765A Ovary Tumor	C10	Small intestine	-122X0601	2281	607	11.6	64	6.6	6.6	2281	607	11.6	64
4200081 [C]	410.1 S21 Ovary Tumor	C10	Heart fl	-122X0624	1192	1291	19.2	2.1	2.1	2.1	1192	1291	19.2	2.1
4200081 [C]	410.1 766A Ovary T'	C10	Kidney fl	-122X0607	365	126	4.6	68	4.6	4.6	365	126	4.6	68
4200081 [C]	410.1 911A Ovary T' (SCN)	S17	Ovary N	-122X0601	2774	1240	14.1	46	2.7	46	2774	1240	14.1	46
4200081 [C]	410.1 919S 1 P Ovary T'	415A	Bladder	-122X0601	1774	817	8.4	56	2.1	2.1	1774	817	8.4	56
4200081 [C]	410.1 919A Ovary T'	415A	Ovary T'	-122X0602	6967	3726	41.5	70	9.2	70	6967	3726	41.5	70
4200081 [C]	410.1 919A Ovary Tumor	CT12	Brain N	-122X0610	2314	1471	6.2	50	1.9	50	2314	1471	6.2	50
4200081 [C]	410.1 962A Ovary Tumor	CT12	lung N	-122X0623	1657	1054	9.7	69	2.9	69	1657	1054	9.7	69
4200081 [C]	410.1 963A Ovary Tumor	CT12	Bone Marrow	-122X0619	8318	1241	4.5	65	2.7	65	8318	1241	4.5	65
4200081 [C]	410.1 964A Ovary T'	415A	Lung fibroblast	-122X0622	1171	2214	16.8	69	3.8	69	1171	2214	16.8	69
4200081 [C]	410.1 915A Ovary Tumor	SP	Placenta	-122X0605	610	564	41.2	57	4.9	57	610	564	41.2	57
4200081 [C]	410.2 201A Ovary Tumor	S16	Stomach N	-122X0626	592	740	3.7	75	2.6	75	592	740	3.7	75
4200081 [C]	410.2 476A Ovary T' tumor	211A	Esophagus M	-122X0620	1197	1217	7.8	65	4.5	65	1197	1217	7.8	65
4200081 [C]	410.2 476A Ovary T' tumor	11	Colon fl	-122X0612	781	797	4.5	95	2.1	95	781	797	4.5	95
4200081 [C]	410.2 476A Ovary T'	11	Colon fl	-122X0649	1470	862	8.9	24	1.7	24	1470	862	8.9	24

FIG. 11

Gene Name	Bar Probe 1	Exp. Name	P1	P2	Name	Probe 2	Gene	T1b	Value	Prob1	Prob2	Prob1	S/B	A%
4.110182 (007)	116.7	426A Ovary Tissue			411A Axilla N	422X0611	774b		75	4.5				
4.210182 (007)	110.7	205A Ovary T			270A Liver N	42240600	10171	950	61.2	.11	1.8	.11		
4.210182 (007)	19.9	485A Ovary T			S91 Fetal tissue	422X0647	14115	1459	62.1	.38	2.2	.06		
4.210182 (007)	18.6	521A Ovary Tissue			S92 Stomach Fund N	42240638	7781	880	47.3	.71	1.1	.71		
4.210182 (007)	16.4	48 A Ovary Tissue			11.Colin N	42240649	-8097	748	27.6	.47	2.2	.47		
4.210182 (007)	15.1	26.3A Ovary Tissue			S71 Breast N	42240651	9815	1919	57.1	.74	4.2	.74		
4.210182 (007)	14.0	429A Ovary Tissue			160A Ovary N	42240654	2661	541	20.1	.61	6.9	.61		
4.210182 (007)	13.5	264A Ovary Tissue			S72 Prostate N	422N0639	7944	2274	36.8	.71	1.9	.71		
4.210182 (007)	9.0	525A Ovary Tissue			C71 Bone Marrow	42240649	-880	1195	3.5					
4.210182 (007)	7.30	266A Ovary Tissue			S90 Sclerical muscle	42240651	8994	1245	34.6	.69	5.1	.69		
4.210182 (007)	6.78	311A Ovary Tissue			C770 Small intestine	42240641	1864	748	8.1	.67	2.2	.67		
4.210182 (007)	5.21	910A Ovary Tissue			10.34 N	42240641	2532	1111	42.7					
4.210182 (007)	5.07	337A Ovary Tissue			C770 Adrenly P	42240647	936	889	3.2					
4.210182 (007)	4.29	101A Ovary Tissue			C77A Endothelial cells	42240648	1516	1567	18.7					
4.210182 (007)	2.7	111A Ovary T			C719 Stomach	42240610	6438	1610	4.2					
4.210182 (007)	1.9	310A Ovary Tissue			C719 Intestine	42240611	2004	1000	16.6	.67	1.6	.67		
4.210182 (007)	1.03	262A Ovary T			S73 Ovary N	42240603	1330	847	7.0	.56	2.4	.56		
4.210182 (007)	0.75	216A Ovary Tissue			110A Uterus	42240622	2539	1681	13.2	.74	3.2	.74		
4.210182 (007)	0.44	186A Ovary T			S10 Pancreas	42240640	511	748	3.9	.62	2.2	.62		
4.210182 (007)	0.4	260A Ovary Tissue			C712 Liver	42240648	894	1120	5.3	.66	1.1	.66		
4.210182 (007)	0.4	435A Ovary Tissue			S7 Ovary D	42240626	-40	567	3.3	.60	2.2	.60		
4.210182 (007)	0.12	948 10 Ovary T C			9185 21 Ovary T C	422X0602	-1088	1529	21.6	.66	9.5	.66		
4.210182 (007)	0.11	428A Ovary Tissue			211A Esophagus N	42240607	725	689	6.2	.65	2.8	.65		
4.210182 (007)	0.10	201A Ovary Tissue			S6 Stomach G	42240620	1008	1018	7.4	.62	3.2	.62		

FIG. 12

Gene Name	Bal Probe 1		P1		P2		Probe 3		QEN ID		Probe1 Value		Probe2 Value		B/B A%		
	Map Name	Probe Name	Map Name	Probe Name	Map Name	Probe Name	Map Name	Probe Name	Map Name	Probe Name	Map Name	Probe Name	Map Name	Probe Name	Map Name	Probe Name	Map Name
-21V0189 [001]	11.2 426A Ovary Tissue	422X0611	8072	241	55.2	67	2.4	67									
-21V0189 [001]	11.3 521 Ovary Tissue	526 Spinal Cord N	7167	547	42.6	69	2.5	69									
-21V0189 [001]	12.0 429A Ovary Tissue	422X0628	2850	227	21.7	64	1.5	64									
-21V0189 [001]	18.0 385A Ovary T-	422X0614	11711	1469	54.0	58	2.2	58									
-21V0189 [001]	17.1 261A Ovary Tissue	422X0607	6949	952	37.8	69	2.0	69									
-21V0189 [001]	5.8 325 Ovary Tissue	422X0624	208	1210	2.1	44	2.0	44									
-21V0189 [001]	15.0 205A Ovary T-	422X0619	1929000000	8676	1717	52.1	57	2.6	57								
-21V0189 [001]	14.5 181A Ovary Tissue	422X0608	1149	707	17.4	57	2.0	57									
-21V0189 [001]	14.4 261A Ovary Tissue	422X0609	6312	6441	29.1	77	2.0	77									
-21V0189 [001]	14.2 261A Ovary Tissue	422X0620	7642	1839	36.1	79	1.1	79									
-21V0189 [001]	1.2 182A Ovary T-	422X0610	4068	1508	4.4	60	2.1	60									
-21V0189 [001]	12.9 9444 Ovary T (SST)	422X0611	2809	8640	12.1	54	2.1	54									
-21V0189 [001]	12.5 311Y Ovary Tissue	422X0601	1424	2069	6.7	61	2.1	61									
-21V0189 [001]	12.4 365A Ovary Tissue	422X0602	1742	724	11.8	70	2.8	70									
-21V0189 [001]	12.1 065A Ovary Tissue	422X0603	5084	1412	17.0	62	2.0	62									
-21V0189 [001]	11.9 261A Ovary T-	422X0604	1470	742	8.0	47	2.0	47									
-21V0189 [001]	11.9 065A Ovary T-	422X0605	3071	580	2.6	41	2.0	41									
-21V0189 [001]	11.7 261A Ovary Tissue	422X0622	21097	1202	11.2	86	2.0	86									
-21V0189 [001]	11.3 115A Ovary Tissue	422X0626	374	470	2.9	47	2.0	47									
-21V0189 [001]	11.1 288A Ovary Tissue	422X0625	9659	1094	5.6	72	2.9	72									
-21V0189 [001]	11.1 201A Ovary Tissue	422X0620	750	672	5.6	62	2.1	62									
-21V0189 [001]	11.1 478A Ovary Tissue	422X0612	498	446	4.2	71	2.0	71									
-21V0189 [001]	10.945 1 Ovary T-	422Y0602	3117	3174	16.7	91	6.2	91									
-21V0189 [001]	10.945 1 Ovary T-	422Y0607	224	409	2.3	48	2.1	48									

FIG. 13

Gene Name	Sample Name	Sample 1	Sample 2	Sample 3	GEM ID	Probe 1 Value	Probe 2 Value	Probe 3 Value	B/B %	B/B A%
421000071011	1202-Ova1 Ovary Tissue	-0.100	-0.100	-0.100	411A Autot N	-0.22X1611	5411	270	36.3	50
421000071011	1202-Ova1 Ovary Tissue	-0.100	-0.100	-0.100	S26 Stomach Fund N	-0.27X1612	5418	5311	27.1	2.1
421000071011	1202-Ova1 Ovary Tissue	-0.100	-0.100	-0.100	421Ova1	-0.27X1613	1252	1250	10.1	56
421000071011	1202-Ova1 Ovary Tissue	-0.100	-0.100	-0.100	S21 Esophagus	-0.23X1617	9507	1668	35.8	3.5
421000071011	1202-Ova1 Ovary Tissue	-0.100	-0.100	-0.100	211A 1 Ova1 N	-0.29X1606	5456	1215	31.1	4.6
421000071011	1202-Ova1 Ovary Tissue	-0.100	-0.100	-0.100	421Y 1 Ova1 O1	-0.29X1624	1841	-4118	11.9	48
421000071011	1202-Ova1 Ovary Tissue	-0.100	-0.100	-0.100	C119 Bladder N	-0.29X1610	1091	1259	2.6	4.0
421000071011	1202-Ova1 Ovary Tissue	-0.100	-0.100	-0.100	S10 Stomach mucosa	-0.29X1606	1114	1036	17.7	55
421000071011	1202-Ova1 Ovary Tissue	-0.100	-0.100	-0.100	S11 Bladder N	-0.29X1606	4161	1249	21.0	2.1
421000071011	1202-Ova1 Ovary Tissue	-0.100	-0.100	-0.100	C119 Small intestine	-0.29X1601	1063	627	1.0	6.0
421000071011	1202-Ova1 Ovary Tissue	-0.100	-0.100	-0.100	S12 Pancreas II	-0.29X1629	1453	627	8.6	47
421000071011	1202-Ova1 Ovary Tissue	-0.100	-0.100	-0.100	C119 Endothelial cells	-0.29X1601	2667	1340	14.9	60
421000071011	1202-Ova1 Ovary Tissue	-0.100	-0.100	-0.100	C119 Liver	-0.29X1607	1340	1340	0.4	40
421000071011	1202-Ova1 Ovary Tissue	-0.100	-0.100	-0.100	S40 Ovule I Activated	-0.29X1605	2911	605	2.4	1.0
421000071011	1202-Ova1 Ovary Tissue	-0.100	-0.100	-0.100	1215 N	-0.29X1601	4111	687	3.2	3.5
421000071011	1202-Ova1 Ovary Tissue	-0.100	-0.100	-0.100	114A 1 Adipose thorax	-0.22X1611	1622	984	7.9	47
421000071011	1202-Ova1 Ovary Tissue	-0.100	-0.100	-0.100	C112 Lung M	-0.22X1622	1892	1245	10.1	4.1
421000071011	1202-Ova1 Ovary Tissue	-0.100	-0.100	-0.100	211A Esophagus	-0.22X1625	604	908	4.4	2.6
421000071011	1202-Ova1 Ovary Tissue	-0.100	-0.100	-0.100	S12 Ovary N	-0.22X1612	216	125	2.7	6.2
421000071011	1202-Ova1 Ovary Tissue	-0.100	-0.100	-0.100	S6 Stomach N	-0.22X1616	182	501	2.9	7.8
421000071011	1202-Ova1 Ovary Tissue	-0.100	-0.100	-0.100	91RS 3 P Ovary Y	-0.22X1602	538	677	4.2	58
421000071011	1202-Ova1 Ovary Tissue	-0.100	-0.100	-0.100	111C1004	-0.22X1602	2493	1511	5.7	6.1
421000071011	1202-Ova1 Ovary Tissue	-0.100	-0.100	-0.100	S21 Ovary M	-0.22X1609	2261	562	12.5	57
421000071011	1202-Ova1 Ovary Tissue	-0.100	-0.100	-0.100	111C1005	-0.22X1603	1749	965	9.7	3.8
421000071011	1202-Ova1 Ovary Tissue	-0.100	-0.100	-0.100	C119 Bladder N	-0.22X1619	281	815	2.2	36
421000071011	1202-Ova1 Ovary Tissue	-0.100	-0.100	-0.100	C119 Bladder N	-0.22X1619	281	815	2.2	36

FIG. 14

11721-1

ACGGTTTCATGGACACTTTATTGTTTACTTAATGGATCATCAATTGGTCTCACTACCTA  
CAAATGGAATTTCATCTGTTCCATGCTGAGTAGTGAAAACAGTGACAAAGCTAATCATAA  
TAACCTACATCAAAGAGAACTAAGCTAACACTGCTCACTTTCTTTTAAACAGGGAAAATA  
TAAATATATGCACTCTAXAAATGCACAAATGGTTAGTCACTAAAAAATTCAAATGGGATCTT  
GAAGAAATGTATGCCAAATCCAGGGTGCAGTGAAAGATGAGCTGAGATGCTGTGCAACTGTTT  
AAGGGTCTGGCACTGCATCTTGGCAGTACAGCTGAATCTGACATGGAAGGTTTACG  
TAATGCCAAGTGGAGATGCAGAAAATGCTAAGTGAATTAGGGCTGTGACAGGAACAA  
AAAGGCAGGAAAGTACTAAATATTGCTGAGAGCATCCACCCCCAGGAAGGACTTACCTTC  
CAGGAGCTCCAAGTGGCACCAACCCCCAGTGCTCACATGGCTGACTTTATCCTCCGTGTC  
CATTTGGCACAGCAAGTGGCAGTG

11731-3

AAGGCTGGTGGTTTGTCTGGAGAACCTCCGCTTCATGTGGAGGAAGAAGGG  
AAGGGAAAAGATGCTTCTGGAAACAAAGGTTAAAGCCGAGCCAGCAAATAAGAAGCTTC  
CGAGCTTCACTTCCAAGCTAGGGGATGTCTATGTCAATGATGCTTGGCACTGCTCAC  
GAGCCCACAGCTCATGGTAGGAGTCATCTGCCACAGAAGCTGGTGGGTTTGATGA  
AGAAGGAGCTGAACACTTGCACAAAGCCTGGAGAGGCCAGAGCGACCCCTCTGGCCA  
TCTGGGCGGAGCTAAAGTTGCACACAAGATCCAGCTCATCAATAATATGCTGGACAAAG  
TCAATGAGATGATTATGGCTGGAAATGGCTTACCTTCCTTAAGGTGCTCAACAAAG  
GGAGATTGGCACTTCTCTGTTGATCAAGAGCCAGCCAAGATTGTCACAGACCTAATGTCC  
AAACCTGAGAAGAATGCTGTGAAGATTACCTTCCTGACTTTCTCACTGCTGACAGT  
TTGATGA

115

TTGGTCCCTAACATTTCATAAAGAGTTACTTAAATCACTGCAACTGGTCTTGAGACTCTTA  
AGTTCTGATTCGAACCTTAGCTAATTCATCTGAGAAGCTGTGGTATAGGTGGCGTGTCTTC  
TAGCTGGGACAAAGTTCTTGTCCCCCTGTAGAGTATCAGACCTTCTGTGAAGC  
TGGACCTCTGTCTGGCCCTGGACTCCCAGATCTGCTTGTATGTTCAAGCTGGAAATGTT  
AAATCTTAAATCTTCCATATGGATGGACAATCTGTCTAAGTTGATCTTAAAGAACACTGGAAAT  
TATCTTCTTGAGCTAAATTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCTCT  
ATTTCTTAGCTTCATCTATCACCCCTGTCAAGATCGCATCTACTAAACTTCTCTCTCTCT  
AAGGGCTGCAAGCTGGGTCAACACTACTGTCCAAGTTCTCTGAAGTTGCTGAACCTCTGT  
CTTCTTGTTCAAGTAACCTGAATCTCTCCAATGTCTCTTCCAGTGGACTTTCTCTG  
GCAAGACATCCAG

יְהוָה

TCATTGGCTGTATGGCATCTGGATCTGATGAGCAGCCACGAAGTTGTAGATTTCA  
ATCAAAAGGATTCCACCAATGTGCTGGAGGGTGTGAGGCAGAGAAACAAAGAACTGTATGGCA  
AGTTAAGAAGCACAGGGCAAAACAAAGAAGGAGACAGAAAAGCAGTTGCAGGAAGCTGAG  
CAAGAAATGGAGGAAATGAAAGAALLAGATGAGAAAGTTGCTAAATCTAAACAGCAGAA  
AATCCTAGACCTGGAAGAAGAGAAATGACCGGCTTAGGGCAGAGGTGCACCTGCAGGAG  
ATACAGCTAAAGAGTGTATGGAAACACTCTTCTTCCAATGCCACCATGAAAGGAAGAAC  
TTGAAAGGGTCAAAATGGACTATGAAACCTTCTAAGAAGTTCAAGTCTTAAATGTCGAA  
GAAGACTCTTAAGTGAACAGGTTCAAGATTTAACCATCAGATAGAAGGTAATGTATC  
TAAACAAGCTAACCTAGAGCCCACCGAGALICATGATAACCAACGAAATGTCACTGAAAGA  
GGGAACACAGTCTATACCAGG

FIG. 15.4

1172532-12

AAGCCAATAATCACCAATTACTTAAATAATGCCAACCACTGACTTGGCAGTCACAA  
ATTCTCACCGTTACAACAACCCCCATGAGGTATTTATCCCATTCTATAGATAGGGAAACCA  
CAGCTCAAGTAAGTTAGGAAACTGAGCCAAAGTATACACAGAAATACGAAGTGGCAAACCA  
GAAGGAAAGACTGACACTGCTATCTGCTGGCCCTCAGTGTCTGGCTCTTTCACACGGGT  
CAATGTCTCCAGCGCTGCTGCTGCTGCATTACCATGCCCTCATGGTTTCTTCCTCTG  
GTGTTCAACTGCACTCTTCAAAGAACTAATCTCATTTCAAGAGACCCTTATTCCTCTC  
TTCTGAATTACTTTAAATAATCTCATGAGGGGAAAAGAAGATGCCCTGTTGGTAGTT  
TTGTTGTTAAGCTGCTCAATTGGGACTTAAACAAATTGTTCTCTGTACATCTCTTA  
ACAGCTGTGTTTGCTAGAAAGATCACTCTCCCTCTCTTCTAGCATGGCTCTAACCTCTC  
AATTCACTTCTCTTCTTCACACAAATCTCAAGTCTTCAAACCTGTATGCCAGAGAGGC  
CTCTTCAAGTTATGTTGTGCTACTCTGAACTGTGCTTTAAAGATTCACTTCTCTTG  
AAGATCTGTAAACCACTTCCCTGTATTGGTAGGTCTTCTCTTCTCTCCAAACAGCCT  
TCATGGTATTCACTGTCTCTCTTCTCTTCAAGTTAGGGCTTCAGAGAGCTTCAGAAC

11726-1&2

CAAGCTTTTTTTTTAAAGTGTAGCATTAAATGTTTATTGTCACCGCAGATGGCA  
ACTGGGTTTATGTCTTCATAATTATAATTGGTAATTAAAAAAATTACAAGTTAAATA  
GCCAATGGCTGGTTATATTTCAGAAAAACATGATTAGACTAAATCATTAAATGGTGGCTTC  
AGCTTTCTTATTGGCTCCAGAAAACTACCCACCTTTGTCCCTTCTTAAAAAAGTGGAA  
TGTTGGCATGCATTGACTTCACACTCTGAAGCAACATCTGACAGTCATCCACATCTACTT  
CAAGGAATATCACGGTGGAAATACTTTTCAAGAGAGGGAATGAAAGAAAGGTTGATCATTT  
TGCAAGGCCACACCACGTGGCTGAGAAGTCAACTACTACAAGTTATCACCTGCAAGCGTC  
CAAGGCTTCTGAAAGGACTCTTCTCGATCTGCTCACCACTTGGCTGCTGGAGCT  
GACGAGGGGCTGTAAGGACCCATGGAAATGGATCCAAGGACCAAACAGAGCTTCAAGA  
CTCGCTGCTGGCTTGAATTGGATCCGATCGCCATGCCCT

11726-1&2

AAGTGTATTACCAATTGTTTATGTCACCGAGATGGCACTGGTTTATGCTTCATATTT  
TATAATTGTAAATTAAAGAATTTCAGTTTAAATAGCCAATGGCTGGTTATAATTTC  
AGAAAACATGATTAGACTAATTCAATTAGGTGGCTCAAGCTTTCCCTATTGGCTCCAG  
AAAATTCCCCACCTTTGTCCCTCTTAAGAAACTGGAATGTTGGCATGCATTGACTTC  
CACTCTGAAGCAACATCCTGACAGTCATCCACATCTACTTCAGGAATATCACGGTGGAAAT  
ACTTTCAAGAGAGGGAATGAAAGAAAGGCTTGATCAATTTCAGGCCAACACCACGTGG  
CTGAGAAAGTCAACTACTACAAGTTTATCACCTGCAAGCGTCCAAAGGCTTCTGAAAGGAGT  
CTTGGCTCTCGATCTGCTTCACCAATTGGCTGGAGTCAGGAGCGGGCTGTAAGGACC  
GATGGAATGGATCCAAGGACCAAAACAGAGCTTCAGACTCGCTGCTGGCATGAATT  
GGATCCGA

FIG. 15R

11728.1.40.19.19

TACAAACTTATTGAAACGCACACGGCACACACACAAACACCCCTGTGGATAGGGAAAA  
 GCACCTGGCACAGGGTCCACTGAAAACGGGGAGGGATGGCAGCTTGTAATGTGGCTTT  
 GCCACAACCCCTCTGACAGGAAGGCCCTAGATTGAGGCCACCTCCATGGTGTGGATGG  
 GGAGGCTCAGAATGGGGTCCAGGGAGAATTGGTAGGGGGAGGTGTAGGGAGGCATGA  
 GCAGAGGGCACCCCTCCAGTGGGTCCCGAGGGCTGCAGAGTCTCAGTACTGTCCCTCAC  
 AGCAGCTGTCTCAAGGCTGGCTCCCTAAAGGGGCGTCCAGCGGGGGCCTCTGGCC  
 AAACACTTGGTACCCCTGGCTGGCGACCGGAAGGCCACGGACAGCAGGCCAGCCCTGTGGTGTCTGGCAG  
 GCACAAACAGACGCCCTGGCGTAGGGACAGCAGGCCAGCCCTGTGGTGTCTGGCAG  
 CAGGTCTGGTTATCATGGCAGAAGTGTCTCCACACTTCACGTCTTCACACCCACGTG  
 AXGGCTACXGGCCAGGAAG

11728.2.40.19.19

CCCGTGGGTGCCATCCACGGAGTTACCTGATCTTGAAGCAGGAATCGCCCGTCTGCA  
 CTGCAGTGGAAAGCCCCGTGGGCAGCAGTGATGCCATCCCCATGCCACGGCTCTGGG  
 AAGGGGCAGCAACTGGAAGTCCCCTGAGACGGTAAGAGATGCAGGGAGTGGCCGGAGAGCA  
 GTGGGCATCAACCTGGCAGGGCCACCCAGATGCCCTGCTAGTGTGTGGGCCATTGTCC  
 AGAAGGGGAGGGCAGCAGCTGTAGCTGGCTCTCCGGGTCCAGGCAGCAGGCCACAGGG  
 CAGAACCTGACCATCTGGGCACCGCGTCCAGCCACCAGCCCTGCTTTAAGGCCACCCAGC  
 TCACCAAGGGTCCACATGGTCTGGCTCCACTCCGCGGTCTTGGGCCCTGATGGTTC  
 TACCTGCTGTGAGCTGGCCAGTGGCAAGTAAGCTGCTGCCATGCCAACGCCACCTGCT  
 GCTCCGATCACCTGCACTGCTGCCAACACACTGTGTGACCTGATCCAGAGTAAGTGC  
 CTCTCCAAGGAGAACG

11730-1

GAATCACCTTCTGGTTAGCTACTACTTGTACAGAACAAATGAGGTTCCCACACCGGAG  
 TCTCCCTGGCTCTGTGTTGGCTCTGGTAAGGCAAGGCCATACACCTTCTCTCTATGG  
 AGAGGGGAATATGCATTAAGCTGAAAGTCACCTTCAAAGTGAGAAAGGGATTGATT  
 GCTGCTTCAGGACTGTGAAATTATGGAAATGTTTACAATGGTTGCTACAAAACAACAA  
 AAAAGGTAAATACAAAATGTGTACATCACAAACATGCTTTAAAGACATTATGCCATTGTGC  
 TCACATTCCCTAAATGTGTTTCAAAAGCTGCTCAGCCTCTAGCCCAGCTGGATTCTCCGG  
 GAAGAGGCAGAGACAGTTGGCAAAAGACACAGGGAAAGGAGGGGTGGTGAAGGA  
 GAAGCAGCCCTCAAGTAAAGATCACGCCCTGAGTTAAAGGTCACTTCCCGCAXGCTGGC  
 CTCAXGCGGAGTCTGGGTCAAGACGGAGGAGCAGCAGCAGGGTGGGACTGGGGCGT

11730-2

AACCGGAGCGCGAGCAGTAGCTGGTGGCACCATGGCTGGGATCACCAACATCGAGGGG  
 GTGAAGGCCAAGATCCAGGTCTGCAGCAGCAGCAGATGATGCAGAGGAGCGAGCTGA  
 CGCCCTCCAGGGAGAAAGTCAGGGAGAALAGGGGGCCGGGAACAGGCTGAGGCTGAGG  
 TGGCTCTTGAACCGTAGGATCCAGCTGGTGAAGAAGAGCTGGACCGTGCTCAGGAGC  
 GCCTGGCCACTGCCCCGCAAAAGCTGGAAGAAGCTGAAAGCTGCTGATGAGAGTGAGA  
 GAGGTATGAAAGTTATTGAAAGCGGGCTTAAGATGAGAGAAAGATGGAACCTCAG  
 GAAATCCAACCTAAAGAACGCACTGAGAACAGAGGAGATAGGAAGTATGAAAGA  
 GGTGGCTCGTAAGTGGTGTCACTGAGGAGACTTGGAACCCACAGAGGAACGAGCTGA  
 GCTGGCAGACTCCCGTTGGCAGAGATGGATGAGCAGATTAGACTGATGGACCAGAACCT  
 GAAGTGTCTGAGTGC

FIG. 15C

## 11732.1 contig

GAGAACTTGGCCTTTATTGTGGGCCAGGAGGGCACAAAGTCAGGAGGCCAAGGGAGG  
 GATCTGGTTTCTGGATAGCCAGGTCAAGCATGGTATCAGTAGGAATCCGCTGTAGCTG  
 CACAGGCCTCACTTGCTGAGTCCGGGGAGAACACCTGCACTGCATGGCGTTGATGACCT  
 CGTGGTACACGACAGACCCATTGGTGCAGTGAAGGGCACCGCAGGGCTCCGCTCTCG  
 AGGGCAGGCAGGAGCATTGCTCTGCACATCCTCGATGTCATAAGGAGTACACAGCTT  
 TGCAGGGCACACTTCCCTGGCAGTAATGAATGTCACCTCTCTGGACTTACAATCTCCC  
 ACTTTGATGTAUTGCACCTTGGCTGTGATGTCATGCAATCAGGCTCCACATGTGTCA  
 GCAGGTGCCTGGAATTTCACGATTTCGCCTCTCAGCCAGACACTTGTGTCATCAAATG  
 GTGGCAGCCGTGACCCCTTCTCCAGATGTAUTCTCTCT

## 11732.2 contig

GCCTGGACCTTGCAGTGCACACAGTGACTTGTGGCAAATGGCCAGACCTTGC  
 TGCAGAGTCATCGTGTCAATTGTGACCAGTGGACCCCGGCCATGTCACAAACAGCCAGTC  
 TCCTGTTGGGTGGAGGGAGCGTGTGGCTGCCGCTGGACCTGCCCTTGTGTGACGGGC  
 AGTCCCACTCGGACACATCGTCACCTCGATGGCGAGAAATTCAAGCTTACTGGTAGCTGCT  
 CCTATGTCATCTTCAAAACAAGGAGCAGGACTGGAAGTGTCTCCACAAATGGGGCTG  
 CAGCCCCGGGGCAAAACAAGGCTGCATGAAAGTCATTGAGATAAGCATGCTGGCGTCTC  
 TGCTGAGCTGCACAGTAACATGGAGATGGCAGTGGATGGAGACTGGCTTGGCCCGTA  
 CGTTGGTGAACATGCAACTCAGGAGTCACTGTCAGGAGCTATCATGATGAAAGTCAGGTTAC  
 CATTTGGCCACATCTCACATACACGGCCXCAAACAAACAGAGTT

## 11735-1-1

ACATCAACCTCTGCTGGTACGGAGGAATGCCCTCTTGATCTTGCCTTGACGTT  
 TCGATAGTRWCAGCTKRYTSRAMSKMIAAGKGYRATGRWMTKSYWGRASYKTMWWMM  
 RSGRARAYTTGAGCAVCCCMCCCTWAGCGSAGK4CCARGTGCAGGTGGACTCTTCTG  
 GATGTTGTACTCAGACAGGGTGCCTGCATCTTCACCTGTTTCCCAGCAAGATCAACCTC  
 TGCTGATCAGGAGGGATGCCCTCTTATCTTGATCTTGCCTTGACATTCTCGATGTTGTC  
 ACTGGGCTCCACCTCGAGGGTGTGATGTTCTTACCAAGTCAGGGCTTCACCAAGATYTCAC  
 CCACCTCTGAGACGGAGCACCAGGTGCAGGGTRACTCTTCTGGATGTTGACTCAGACA  
 GGGTGGCGYCCATCTTCCAGCTGCTTCCGAGCAAAAGATCAACCTCTGCTGGTCAAGGAGGRAT  
 GCCTCTTGTCTGGATCTTGCYTTGACRTCTCRATGGTGTCACTCGGCTCCACTTCGA  
 GAGTGATGATCTTACCAAGTCAGGGTCTTACCGAAGATCTGCATCCCACCTCTAA

## 11740.2 contig

AAGTCACAAACAGACAAGATTATTACACGCTGCAAGCTATATTAGAACGCTGAACGAAGA  
 GACAGAGGTCACTGATTCTGAGATGATGGAGACCTTCAGGCTCGAATTACATCTTACAAG  
 AGGAGGTGAAGCATCTCAAAACATTAATCTCGAAAAAGTGGAGGGAGAAAGAAAAAGAGGCT  
 CAAGACATGCTTAATCACTCAGAAACGCAAAAGAATAATTAGAGATAGATTAAACTAC  
 AAACCTAAATCATTACAACACGGTTAGAACAAAGAGGTAATGAAACACAAAGTAACCAA  
 GCTCGTTAACTGACAACATCAATCTATTGAGAGGGCAAGCTGAGAGAAGGCTGAAAATCGGGTTGT  
 ATGGAAAAAAGCTGAAAGAAGAAAGAGAACCTGAGAGAAGGCTGAAAATCGGGTTGT  
 TCAGATTGAGAAACACTGTTCCATGCTAGACGTTGATCTGAAAGCAATCTCAGCAGAAACT  
 AGAACATTGACTGCAAAATAAGAAAGGATGGAGGGTGAAGTTAGAATCTA

## 11765.2&amp;64.2 contig

CGCCTCCACCATGTCCATCAGGGTGA  
CGGGCCTTCAGCAGCGCTCTACACGAGTG  
TCTCCCAGTGGGCAGCAGCAACTTCTCG  
GGGGCATGGGAGGCATCACCGCAGT  
GGAGGTGGACCCCCAACATCCAG  
CAACAACAAGTTGCCCTCTCATAG  
GCTGGAGACAAGTGGAGCTCTGCAGC  
ACATGTTCGAGAGCTACATCAACAR  
AGCTGAAGCTGGAGGCGAGCTTG  
AAGTATGAGGATGAGATCAATAAG  
AAGGATGTGGATGAAGCTTACATGA  
ACCGACGAGATCAACTTCTCAGGC  
CAGATCTCGGACACATCTGTGGT  
GCATATTGCTGAGGTCAAGGC  
CTGAGAGCATGTACCAGGTCAAGT  
ATGACCTGCGGCCACAAAGACT  
XCAGGCTGAGATTGAGGGCCTCA  
AAGCCAGAXGGCTXCTGGAXGXCCGCCAT

## 11767.2 contig

CCCGGAGCCACCCAACGAGCGGAA  
GGGTCTGAAACCCAACCCCTAACGG  
GCAGGGGGCTACCCAGGGCTTCT  
GETTATCCTGCACAGGCACCTCC  
CACSTGCACCTGGACTCTACCC  
ACAGCCAAGTGCACCCAGGG  
CTGATTGTGCCCTATAACCTGC  
TTCTGGGCACGGTAAG  
ATGTTGCCCTCACTTAACCCACGG  
TACAAAGCTGGATAAA

## 11768-1&amp;2

GGGAATGCAACAACCTTATTGAA  
GGAACTTAGACACCCCCCCTCRA  
GTGAGTCAGACAGGGTRCG  
TGA<sub>2</sub>AGGAGGRATGCC  
GGGCTCCACCTCGAGGGTGA  
CCTCTGAGACGGAGC  
GTGCGYCCATCTCCAGCTG  
CTTCCTGTCYGGATCTT  
GTGATGGTCTTACCA  
CCAGGTGCAGGGTGG  
GCTGTTCCCAGCA  
AAGATCAACCT  
GGTCA  
ACCTCTGCTGGTCA  
CTCGGCTCC  
ACTTCGAGA  
AAGACGGAGCA  
GAGACAGGGTGC  
GCTCCATCTTCCA

11768-1&amp;2-11735-1&amp;2

AGGTTGATCTTGCTGGAAACAGCTGGAAGATGGACCCACCCCTGTCTGACTACAACATC  
 CAGAAAGAGTCCACCCCTGCACCTGGTCTCGCTTAGAGGTGGGATGCAGATCTCGTGA  
 AGACCCCTGACTGGTAAAGACCATCACTCTCGAAGTGGAGCCGAGTGACACCATTGAGAAYG  
 TCAARGCAAAGATCCARGACAAGGAACGGATYCCCTCTGACCAGCAGAGGTTGATCTTG  
 CSGGAAAAGAGCTGGAAAGATGGRCCCACCCCTGTCTGACTACAACATCCAGAAAGAGTCYA  
 CCCTGCACCTGGTCTCCGTCTAGAGGTGGGATGCCATCTTGTGAAGAGACCCCTGACTGG  
 TAAGACCATCACCCCTGAGGTGGAGCCCAGTGACACCATCGAGAATGTCAAGGCAAAGAT  
 CCAAGATAAGGAAGGCATCCCTCTGATCAGCAGAGGTTGATCTTGCTGGGAAACAGCT  
 GGAAGATGGACCCACCCCTGTCTGACTACAACATCCAGAAAGAGTCACATYTGCACYTGGT  
 MCTBCGCTYAGGGKGGGRTG~~ta~~TCTWMGK~~Waga~~C~~a~~C~~i~~C~~g~~CTKKY~~AAGRYY~~TCAMCMW~~t~~  
 &AKKTC~~g~~AKYSCASTKWC~~a~~CTWT~~CRA~~KAAMGYRWWGCA~~Waga~~TCCMAGACAAGGAAGGC  
 ATTCCCTCTGACCAGCAGAGGTTGATCT

11769.1.contig

ATGGAGTCTCACTCTGACCAAGGCTGGAGCCCTGTGGTGCATATCGGCTCACTGCACT  
 CTCCACTTCCCTGGGTTCAAGCGATCTCTGCTCAGCCTCCCGAGTAGCTGGGACTACAG  
 GCAGGGCGTCACCATAATT~~TTTGTATTT~~AGTAGAGACATGGTTCCGCATGTTGGCTGGG  
 CTGGTCTCGAACCTCTGACCTCAAGTCACTGCTCTGGCCTCCC~~AA~~AGTGTGGGATTACA  
 GGGAAAGCCAACGGCTCCGGCCAGGGCAACAACTTTAGAATGAAGGAAATATGCCAAAG  
 AACATCACATCAAGGATCAATTAAATTACCATCTATTAAATTACTATATCTGGGTAATTATGA  
 CTATTCCCAGCATTCTACGGTCACTGCTTGAGAAGATGTTGCTCTGCATGGTGGAGAG  
 TGGAGAAGGGCCAGGATTCTAGGT

11769.2.contig

AGCGCGGTCTTCCGGCCGAGAAACCTGAGGTGATGTGGCCGCCCTCAACCGACCCATC  
 CAGCTCGTTGAGCAGGGAGTGGACAGGGCTAGGAACGACTGGCCACGGCCCTGCAGAAG  
 CTGGAGGAGCCACAAAAAGCTGCAGATGAGAGTGAGAGAGGAATGAAGGTGATAGAAAAA  
 CGGGCCCATGAAGGTGAGGAGAACATGGAGATTAGGGAGATGCAGCTCAAAGAGGCCA  
 AGCACATTGGGAAGAGGCTGACCCAAATACGGAGGAGTGGCTGAAGCTGGTCACTCC  
 TGGAGGGTGACTGGAGAGGGCAGAGGAGCGTGGAGGTGTCTGAAC~~AA~~ATGTGGT  
 GACCTGGAAGAACAACTCAAGAAATGTTACTAACAAATCTGAAATCTCTGGAGGCTGCATCT  
 GAAAAGTATTCTGAAAAGAGGAGAACAAATATGAAGAAGAAAATTAAACTCTGTCTGACAAA  
 CTGAAGAGGCTGAGACCCTGCTCAATTGAGAGAGAACGGTTGCAAAACTGGAAAAG  
 ACAATTGATGACCTGGAAGAGAAACTTCCCCAGC

11770.1.contig

GTGCACAGGTCCCATTATTGAGAAATAATAATTACAGTGATGAATAGCTCTCTT  
 AAATTACAAAACAGAAACACAAAGAGGAACAGGAAACACCCACGGACTTCAAGGGT  
 GAAGCTGTCCCCCTCTCCCTGCCACCCCTCCCAGGCTCATTAGTGTCTTGGAAAGGGGAGA  
 GGACTCAGAGGGATCAGTCTCCAGGGGCCCTGGCTGAAGGGGTGAGGCAGAGAGTCC  
 TGAGGCCACAGAGCTGGCAACCTGAGCCGCTCTCTGGCCCCCTCCCCACCACTGCCA  
 AACCTGTTACAGCACCTTGGCCCTCCCTCAACCCGTCACTCCACTCTGCACCTCCCA  
 GGCAGGTGGGTGGCCAGGCTCAGGCAACTCCTGGCCGGGTTTCGGTGACCAAGGC  
 ACAGTCCCAGAGGTGATATCAAGGGCT

FIG. 15F

## 11770\_1.contig

GCAAGGAACJGGTCTGCTCACACTTGCTGGCTTGGCATCAGGACTGGCTTATCTCCCTGA  
 CTCACGGTGCACAAAGGTGCACTCTGGAACGTTAAGTCCGCCCCAGCGCTTGAATCCCTAC  
 GGCCCCCACAGCGGATCCCTCAGGCTTCAGGTCTCAACTCCCGTGGACGGTGAACAA  
 TGGCCTCCATGGGGCTACAGGTAATGGGCATCGCGCTGCCGTCTGGCTGGCTGGCGT  
 CATGCTGTGCTGCCGTCCCATGTGGCGCGTACGGCCTTACATCCGCAGCAACATTGTC  
 ACCTCGCAGACCATCTGGGAGGGCCTATGGATGAACTGCGTGGTGCAGAGCACCGGCCAG  
 ATGCAGTGCAGGTGACGACTCGCTGCTGGCACTGCCGAGGACCTGCAGGGGGCCCG  
 GCCCTCGTCATCATCA

## 11773\_1.contig

TGCAAAAGGGACACAGGGGTTCAAAAATAAAAATTCTCTCCCCCTCCCCAAACCTGTAC  
 CCCAGCTCCCCGACCACAACCCCCCTTCCTCCCCGGGGAAAGCAAGAAGGAGCAGGTGTG  
 GCATCTGAGCTGGAAAGAGAGAGGCGGGGAGGTGCGAGCTCGGTGCTGGTCTCTTC  
 CAAATATAAAATACXTGTGTCAGAACTGGAAAATCCTCCAGCACCCACCACCCAAAGCAGCT  
 CCGT:ITCTGCCGGTGTGGAGAGGGCGGGGGCAGGGGCCAGGCACCGGCTGGCT  
 GCGGTCTACTGCATCCGCTGGGTGTCACCCCGCAGGCTCTGCTGCTCATGGTAGAAGA  
 GATGACACTCGGGGTCCCCCGGATGGGGGCTCCCTGGATCAGCTCCCGGTGTTGGG  
 GTTCACACACCAGCACTCCCCACCGTGCCTAGAGACATCTGCACTGTTGAGGTTG  
 TACAGGCCATGCTTGTACAGTTG

## 11773\_1.contig

GGGTTGGAGGGACTGGTCTTAAAGACACTTGCAATATTCACTATCAAACAA  
 GTTGCACTATTGATTCTCTTCTCCAAATCGGGCCAAAGAGACCATATAAAAGAGAGT  
 ACATTTAAACCAATAACCTGCAGGATGTACACCTAACAGACCTCTAGAAACCTTACCAAG  
 AAAATGGGCACTGGTAGGAAAGCAAACTTAAAGATCAACAAACTGCCAGCCCACGGGA  
 CTGAGACGGCTGTACACCCAGATGGGTGCCAGGGTCCCACAAACCCAAAGCAAAAGTT  
 TCAAAATAATATAAAATTAAAGATTGTACATAAGCTATTCAAGATTCTCCAGCACT  
 GACTGATAACAAAGCACAAAGAGATGGCACTCTAGAGACAGCAGCTTCAAACCCAGAA  
 AGGGTGTAGAGATGACTTCAACATGGCTAAATGAGTGGCAAAACACAGTCTTCTTCTT  
 CTTCTTCAGGAGCCAGGAAAGCAAACTGCGTACCTAACATAAGGGGGACATGATG  
 TCCATTCTGTAGGAGTGTGAAGGG

## 11778-2&amp;30-2

CAGGAACCGGACCCCCACCACTACCTGGCTGGCACCATGGCTGGGATCACCACCATCGA  
 GGGCGTGAAGCGCAAGATCCAGGTTCTGCAGCAGGAGGGAGATGATGCAAGAGGACCGAG  
 CTGAGCCGCTCCAGCGAGAAAGTGGAGGAGAAAGCCGGGCGGGAAACAGGTGAGGCT  
 GAGGTGGCCTCTTGAACCGTAGGATCCACCTGTTGAAGAAGAGCTGGACCGTGTCTAG  
 GAGCCGCTGCCACTGCCCTGCAAAACCTGGAAAGAAGCTGAGGAGCTGCTGATGAGAGT  
 GAGAGAGGTATGAAAGTTATGAAACCGGGCTTAAAGATGAGAAAGATGGAACCT  
 CCAGGAAATCCAACCTCAAGAAGCTAACCCACATGCGAGAAGAGCCAGATAGGAAGTATG  
 AAGAGGTGGCTCGTAAGTGGTGTATGAAAGAGACTTGAACCGCAAGAGGAGATGGAG  
 CTGAGCTGGCAAGAGTCCCCCTGGCGAGAGATGGATGAGCAGATTAGACTGATGGACCGAGA  
 ACCTGAAGTGTGAGTGC

11782.1 contig

ATCTACGGTCATCAATCAGGCTGGAGACACCATGTTCAATCGAGCTAAGCTGCTCAATATTG  
 GCTTCAAGAGGCCTTGAGGACTATGATTACAACCTGCTTGTGTTCACTGATGTGGACCT  
 CATTCCGATGGACGACCGTAATGCCAACGGTGTGTTGCAGCCACGGCACATTCTGTT  
 GCAATGGACAAGTTCGGGTTTACGCTGCCATATGTTCACTGAGTATTGGAGGTGTCTGCTCT  
 CAGTAAACAAACAGTTCTGCCATCAATGGATTCCCTAATAATTATTGGGGTTGGGAGGA  
 GAAGATGACCGACATTAAACAGATTAGTTCAAAAGGCATGTCATATCACGTCAAATG  
 CTGTTAGTAGGGAGGTGTCGAATGATCCGGCATTCAAGAGACAAAGAAAATGAGCCCAATC  
 CTCAGAGGTTGACCGGATCGCACATACAAAGGAACGATGCCATGATGGTTGAAC  
 CACTTACCTACAAGGTGTTGGATGTCAGAGATACCGTTATATACCCAATCAC

11782.2 contig

CTAGACCTCTAATTAAAAGGCACAAATCATGCTGGAGAATGAAACAGTCTGACCCCCGAGGGC  
 CACAGCGAAATTAGGGAAAGGAGGCAGAGGTGAGAAGGGAAAGGAAAGGAAGGAGG  
 AAGGAGAACATAAGAACTGGAGACGTTGGTGGTCAGGGAGTGTGGTGGAGGCTCGG  
 AGAGATGGTAAACAAACCTGACTGCTATGAGTTTCACACCCATAGTCTAGGGCCATGAG  
 GGGCTCAGTTCTGGTGGCTGAGGTCTTCCACCCAGCCCACCTGGGGAGTGGAGTGG  
 GGAGTTCTGCCAGGTAACGAGATGTTGTCCTCAAGTTCCTGACCCAGATGTCCTGGCAGGA  
 TAACGCTGACCTGTTCCCTAACAAAGGACCTGAAGTAATTGCTCTTAC

## 11783-1 &amp; 2

CCGAATTCAAGCGTCACCGATCCYCCCTTACCATCAAATCAATTGGCCACCAATGGTACT  
 GAACCTACGAGTACACCCACTACGGCGACTAAATCTCACTCCCTACATACCTCCCCAT  
 TATTCCCTAGAACCAAGGGCAGCTGCCACTCTTGACGTTGACAATCGAGTAGTACTCCCCAT  
 TGAAGCCCCCATTCTGATAATAATTACATCACAAAGACGTTGCACTCATGAGCTGTC  
 ACAATTAGGTTAAAAACAGATGCAATTCCCGGACGTCAAGCCAAACCACTTACCCGCTA  
 CACGACCGGGGTATACTACCGCTCAATGCTCTAAATCTGTCAGGAAACCAACAGTTCT  
 GCCCATCGTCCTAGAATTAACTCCCTAAATCTTGAATTAGGGCCGTATTACCCCTA  
 TAGCACCCCCCTCACCCCTCTAG

11786.1 contig

GCTCTCACACTTTATTGTTAAATTCTCTCACATGGCAGATACAGAGCTGTCGTCTTGAAG  
 ACCACCACTGACCAGGAATGCCACTTTACAAATCATCCCCCTTTCTGATTGGAAAC  
 AGTTTCCCTGACCGTCTGGGAGCGTTGAGGGTGACCGACGACATTGCACTGCAAAAAA  
 GGAGTGACCCCAAGGCCCTCACCCACACTCCCAAGGCTCACCATGGGCTGCAGGTGACTT  
 GCCAGGTTGGGTTCTGAGCTTCTGCTGCTCCGGTGGGAGGGCCCTCAAGAAGTGA  
 GAGGCCGGGTATGCTCATGAGTTAACATTACGGGACAAAGGCCATCATTAGGAT  
 AAGGAACAGCCACACCACTCATGCTCTGAGGGTTAGCTGAGGAGGGGTGAAGGAT  
 TCCACTTATGAAAATTAAACGAAACACGGTTTAGCTGGGTGGAAACAGGAAAC  
 TGTGATGTCGGCCAATGACCCACCAATTCTGCCATGTAAGGTCCCCATGAAACC

## 11786.2 contig

CAAGCGCTTGGCGTTGGACCCAGTCAGTGAGGTTGGGTTGTGCCTTGGGATT  
 TGTTTGACCCAGGGTCAGCCTTAGGAAGGTCTCAGGAGGAGGCCAGTCCCTTCAG  
 TACCACCCCTCTCCCACCTTCCCTCCGGCAACATCTCTGGAAATCAACAGCATATT  
 GACACGGTGGAGCCGAGCCTGAACATGCCCTCGGCCAGCACATGGAAAACCCCTTC  
 CTGCTAAGGTGCTGAGTTCTGGCTTGAGGATTCAGACTGAAATTCTCATCAG  
 TCCATTGCTCTTGAGTCCTTGAGAAGAACCTCAGATCAGTGACCTGGAGAAAGACTT  
 GTCCCCACTACAGATCTATCTCCTCCCTGGAAAGGGCAGGGATGGGACGGTGTATGG  
 AGGGGAAGGGATCTCTGGCCCTCATGGCACACTGGTGGGACCATGAACATCTTAG  
 TGTCTGAGCTCTCAAATTACTGCAATAGGA

## 13691.1&amp;2

AGCGTCAAATCAGAATGGAAAAGACTCAAAACCATCATCAACACCAAGATCAAAGGAC  
 AAGRATCCTCAAGAAACAGGAAAAAAACTCTAAAACACCAAGGACCTAGTTCTGTAG  
 AACACATTAAGCAAAATGCAAGCAAGTATAGAAAAGGTGGTTCTTCCCAGTGG  
 AACCCAAATTCTCATCAATTATGTGAAGAAATTCTCCGGATGACTGACCAAGAGGCTATTCA  
 AGATCTCTGGCAGTGGAGGAAGTCTCTTAAAGAAAATAGTTAAACAATTGTTAAAAAAAT  
 TTCCGTCTTATTCTGTAACAGTTGATATCTGGCTGTCTTTATAATGCAAGAGT  
 GAGAACCTTCCCTACCGTGTGATAAAATTGTCAGGTTCTATTGCCAAGAAATGTGTTGT  
 CCAAAATGCGTGTAGTTAAAGATGCAACTCCACCCCTTGCTTGGTTAAAGTATGTA  
 TGGAAATGTTATGATAGGACACATACTAGTAGCCGGTGTCAAGACATGGAAATGGTGGSMGAC  
 AAAATATACATGTGAAATAA

## 13692.1&amp;2

TCCGAATTCCAACCGAATTATGGACAAACGATCCCTTAAAGAGGATTACTTTTCAATTTC  
 GGTTTAGTAATCTAGGCTTGCCTGTAAGAAATACAACGATGGATTAAATACTGTTG  
 TGGAATGTGTTAAACGATGATCTAGAACCTTGTATATTGATAGTATTCTAACCTTC  
 ATTCTTAACTGTTGCAGTTAATGTTCAATTTCTGCTATGCAATCGTTATATGCACTGTTTC  
 TTAAATTTTTAAAGATTTCTGGATGATAGTTAAACACAAAAGTCTATTAAACTG  
 TACCAAGTACTTACAGTTGACCAACAGGGAAAGTTGTGGGGTTAAACTTGTATTCTT  
 TCTTATAGAGGCTCTAAAGGTATTTATGTTCTTTAAACAAATATTGTGTACAAC  
 CTAAACATCAATGTTGGATCAAACAGACCCAGCTTATTCTGC

## 13693.2

TGTGGTGGCGCCGGCTGACCTGGAGCCCCAGGACTCTGACCCCTGCCCTGCCTTCAGCAA  
 GCCCCCGGGCAGGCCGGCCACTACGAACCTGCCCTGGTAAAGAAATATAGGCCAGTAAA  
 GCTGAATGAAATTGCGGAATGAAAGACACCGTGAACAGGCTAGAGGTCTTGCAGGGGA  
 AGGAAATGTGCCAACATCATCAATTCCGGCCCTCCAGGAACGGCAAGACCAACAAAGCAT  
 TCTGTGCTTGGCCCGGGCCCTGCTGCCCTGGACACTCAAAGATGCCATGTTGAACTCAAT  
 GCTTCAAAATGACAGGGCATTGACGTTGTGAGGAATAAAATTAAATGTTGCTCAACAA  
 AAAGTCACCTTCCCACACCCGACATAAGATCATCAATTCTGGATGAAACGAGACAGCATG  
 ACCGACGGAGCCCAAGCAAGCCTGAGGGAGAACCATGAAATCTACTCTAAACCAACTCGT  
 TCGCCCTTGTAAATGCTCGGATAAGATCATCGAGCC

L3696.1-13744.1

CTTGGC-AAGCTTTATTCATGTCTGCCGCATGGAACTCACCTGCACATGGCATCTTAGCT  
GTGAAGGAGAAAGCAGTGCACGAGAAGGAATGAGTGGGCGGAACCAACGGCCTCCACAA  
GTCGCTTCAGCAGCCTGCCAACGCCATGGCAGAGAGAGACTGCAAACAAACACAAGCA  
AACAGAGTCTTCAAGCTGGAGTCTGAAAGCTCATAGTGGCATGTGTGAATCTGACAA  
AATTAAAAGTGTGCATAGTCCATTACATGCATAAAACACTAATAAATCTGTGTTACAG  
TGACTGCAGCAGGGAGGTCCAGCTCCACCCTGCCTCCGCACATCACATCAAGTGCCTA  
TGGTTAGAGGGTTTTCATATGTAATTCTTTATCTGTAAAAGGTAAACAAAATATACAG  
AACAAAACCTTCCCTTTTAAAGCTAATGTTACAAATCTGTATTATCACTTGGATATAAAT  
AGTATATAAGCTGATC

13700-1

CAAGGGATATATGTTAGGGTACRGRGTGACACTGAACAGATCACAAAGGACGAGAAAACA  
TTAGTTCTCTCCCCTCCCCAGCGTCTCCTTCGTCCTCCCTGGTTTCCGATGTCACAGAGTGA  
GATTGTCCTAAGTAAGTGATGATCAGAGTGCTGKCTTATAAGACTCTTCATTAGCGT  
ATCCAATTCAAGCAATTGCTCATCAAATGCCGTTTGCAGGCTACAGGCCTTTCAGGA  
GAGTTAGAATCTCATAGTAAAAGACTGAGAAAATTAGTGCCAGACCAAGACGAATTGGG  
TGTGTAGGCTGCAATTCTACTAATTCAAATGCTCTGGTAAAGCCTGCTGGGAGTT  
CGACACAAAGTGGTTGTTGTTGCTCCAGATGCCACTTCAGAAAGATACCTAAATAATCT  
CTTCAAAAGTAGAACAC

13300 -

TCCGGAGCCGGGGTACTGCCGCCCCCGGTGCAGCCACTGCAGGCACCGCTGCC  
GCCGCTGAGTAGTGGGTTAGGAAGGAAGAGGTCACTCGCTCGGAGCTTCGCTCGGAA  
GGGTCTTTGTTCCCTCCAGCCCTCCCACGGGAATGACAATGGATAAAAGTGAAGCTGGTACA  
GAAAGCCAACACTCGCTGAGCAGGGCTGAGGGATATGATGATAAGCCTGCAGCCATGAAGGC  
AGTCACAGAACAGGGGCATGAACTCTCCAGGAAGAGAGAAATCTGCTCTCTGTCCTA  
CAAGAATGTGGTAAGGCGCCCGCCGCTCTCCTGGCGTGTCACTCCAGCATTGAGCAGA  
AAACAGAGAGGAATGAGAACAGAACCCAGAGATGCCAAAGAGTACCGTGAGAACATAGA  
GGCAGAATGCAAGGACATCTGCAATGATGTTCTGGACCTTGTGGAACAAATACTTATTCC  
AATGCTACACAAACCCAGAAA

13-013

AAAAAGCAGCARGTTCAACACAAAAATAGAAATCTCAAATGTAGGATAGAACACAAAACCAA  
GTGTGTGAGGGGGGAAGCAACACCAAAAGGAAGAAATGAGATCTTGCACAAAAAGATGGAA  
GGAGCGTTCCCTCTCCTCTGGGGACTGACTCAAACACTGATCTGGCAGTATACACCATTCA  
CAGACTCAGGGGTGTTCATTTT...GGCACTAAAGAAAGCTGGGATTAAGAAAGACGTT  
TCTGGAGGCTTAGGGACCAAGGCTGGCTCTTCCCCCTTCCCACCCCCCTTGATCCCTT  
CTCTGATCAGGGCAAAAGCACTCGAAATCAGGGACGTAGACTTGGAAAGGGAAAGGATTC  
CACTTGACAGAATGGGACAGACCTCTTCCCA

FIG. 15J

13701.2

TGGCAATAGCACAGCCATCCAGGAGCTTCARGCGCATCTCGGAGCAGTTCACTGCCATG  
 TTCCGCCGGAAAGCCCTCTCCACTGGTACACAGGCAGGGCATGGACGAGATGGAGTTC  
 ACCGAGGCTGAGAGCAACATGAACGACCTCGTCTGACTATCAAGCAGTACCAAGGAG  
 CACCGCAGAAGAGGAGGAGGATTCTGGTGAGGAGGCCAGAGAGGAGGCCAAGGCAGAG  
 CCCCCATCACCTCAGGCTCTCAGTCCCTAGCCGTCTTAACCTCAACTGCCCTTCTCTCC  
 CTCAGAATTGTGTTGCTGCCTCTATCTGTTTTGTTTCTCTCTGGGGGGTAGAA  
 CAGTGCCTGGCACATAGTAGGCCTCAATAAAACTTGGTTGNTGAATGTCTCCT

13702.2

AGCTGGCGCTAGGGCTCGGTTGTGAAATACAGCGTRGTCAAGCCCTTGCCTCAGTGTAGAA  
 ACCCACGCCCTGTAAGGTGGTCTTCGTCATCTGCTTTCTGAAATACACTAACAGAGCAG  
 CCACAAAATGTAACCTCAAGGAAACCATAAGCTGGAGTGCCTTAATTITTAACCAGTT  
 TCCAATAAAACGGTTTACTACCT

13704.2-13740.2

GGAGATGAAGATGAGGAAGCTGAGTCAGCTACGGGCARGGGGGAGCTGAAGATGATGA  
 GGATGACGATGTCGATACCAAGAAGCAGAAGACCGACGAGGATGACTAGACAGCAAAAA  
 AGGAAAAGTTAAA

13706.1

GATGAAAATTAATTAATCTTAAATTAATCAAAAGGCACCTACGATACCACTAAACCTACTG  
 CCTCACTGGCACTAKCTAAKGAAACATCAAGCTACAGSACATYATCTAATAATGAATGTTA  
 GCAATTACATAKCARAGAACATGTTCTTCCAGAAGACTATGGNACAATGGTCATTWG  
 GGCCCAGAGGATAATTGGCCNGGAAACGATCAAGATAGATNAANGTAAAG

13706.2

GAGTAGCAACCCAAAGCCCTTGGTATTGAGTCTGTGGSGACTTCGGTTCCGGTCTCTGCA  
 GCAGCCGTGATCGCTTAGTGGAGTGGTAGGGTAGTTGGCCAGGATGCCGAATATCAAAA  
 TCTTCAGCAGGGCAGCTCCCACCAAGGACTTATCTCAGAATTTGCTGACCCGCTGGGGCTGG  
 AGCTAGGCAGGTGGTCACTAACAAATTCAAGCAACCAAGGAGACCTGTGTGGAATTGGTG  
 AAAGTGTACCGTGGAGAGGATGTCACATTGTCAGAGTGGNTGTGGAAATCAATGAC  
 AATTAAATGGAGCTTTGATCATGATTAAATGCCCTGCAAGATTGCTCAGCCAGCCGGGTTA  
 CTGCAGTCATCCCCTGCTTCCCTATGCCCGGGCAGGATAAGAAAGATNAAGAGCCGGGCC  
 GCCAATCTCAGCCAAGCTTGGTCAAAATATGCTATCTGTTAGCAGTGCAGATCATATTATCA  
 CCATGGACCTACATGCTTCTCAAAATTGAGGCTTTT

FIG. 15K

13707.3

ATGCAAAAGGGACACAGGGGTTCAAAAATAAAAATTCTTCCCCCTCCCCAAACCT  
 GTACCCCAGCTCCCCGACCACAACCCCTTCCCTCCCCGGGGAAAGCAAGAAGGAGCAGG  
 TGTGGCATCTGCAGCTGGAAAGAGAGACGCCGGGGAGGTGCCAGCTCGGTCTGGTCTC  
 TTCCAAATATAAAATACGTGTGTAGAACTGGAAAATCTCCAGCACCCACCACCCAAGCA  
 CTCTCCGTTCTGCAGGTGTTGGAGAGGGCGGGAGGGCAGGGCCAGGACCGGCT  
 GGCTCGGTCTACTGCATCCGCTGGGTGTGCACCCCGGA

13710.2

AGGTTGGAGAAGGTCACTGCAGGTGCAGATTGTCCAGGSK CAGCCACAGGGTCAAGCCAA  
 CAGGCCAGAGTGGCACTGGACAGACCATGCAGGTGATGCCAGCAGATCATCACTAACACA  
 GGAGAGATCCAGCAGATCCCGGTGAGCTGAATGCCGCCAGCTGAGTATATCCGTTA  
 GCCCAGCCTGTATCAGGCACTCAAGTTGTGCAGGGACAGATCCAGACACTTGCCACCAAT  
 GCTCAACAGATTACACAGACAGAGGTCCAGCAAGGACAGCAGCAGTCAAGCCAGTTCAC  
 AAGATGGACAGCAGCTTACAGATCCAGCAAGTCACCATGCCTGGGCCANGACCTCG  
 CCAGCCCATTTCATCCAGTCAGCAAGCCACAGCCCTTCAGGGCAGGCCCCCAGGTGAC  
 CGGCAGCTGAAGGGCTGAGCTGCCAGGCCAANGACACCCAACACAATTTGCCATAC  
 AGCCCCCAGGCAATGGCACACCCCTTCTCCAGGGAC

13710-1

TGAGATTTATGCATTCATGCAGCTTGAAGTCCATGCAAAGGRGACTAGCACAGTTTTA  
 ATGCATTTAAAAATAAAACGGACGTGGCCAGCAAAACACAAAAGTCTTAGTTCTGGG  
 TCCCTGGGAGAAAAGAGTGTGGCAATGAAATCCACCCACTCTCCACAGGGATAAATCTGT  
 CTCTAAATGCAAACAAATGTTCCATGGCTCTGGATGCCAAATACACAGAGCTCTGGGTC  
 AGAGCAAGGGATGGGGAGAGGACACGAGTGAAAAGCAGCTACACACATTCACCTAAT  
 TCCATCTGAGGGCAAGAACAAACGTTGGCAAGTCTTGUGGGTAGCAAGCTGTT

13711.1

TCCAGACATGCTCTGTCTAGGGGGGGACCAAGGAACCAAGACCTGCTATGGAAACGAGAA  
 AGAGTTAAGGAAGGTTCTTCTTCACTTCTGTTCTTCTCTTTGCTTTGAACAGTTTTA  
 AATATACTAATAGCTAAGTCATTGGCAGCCAGGTCCCGGTGAACAGTAGAGAACAGGA  
 GCTTGCTAAGAATTAAATTGCTGTTTCACTTCAACAGAGCTGCCCTGTTCCCTG  
 ATGGAGTTCCATTCTGCCAGGGCACGGCTGAGTAACACGAAGCCATTCAAGAAAGGGGG  
 GTGTGAAATCACTGCCACCCATGGACAGACCCCTCACTCTCCCTCTTACGCCAGGGCT  
 ACTTAATAATAATAATTATACCTTGAATAATGATAACCGAATTCTCCATGCCGATCTA  
 AGGCACTTGCAGCTCTTATCCGGACAGTCAGCAAGCACTGTTGGACAAAGATAAGG  
 AAAAGAAAAAGAAGAAACACCCCAACTCTGT

*FIG. 15L*

13711.2

TGAGACGGACCACTGGCCTGGCCCCCTCATKTGCTGTCGTAGGACCTGACATGAAACGC  
 AGATCTAGTGGCAGAGAGGAAGATGATGAGGAACCTCTGAGACGTCGGCAGCTTCAGAA  
 GAGCAATTAAATGAAGCTTAACTCAGGCCCTGGACAGTTGATCTGAAAGAAGAGATGGAG  
 AAAGAGAGCCGGGAAGGTCACTCTGTTAGCCAGTCGCTACGATTCTCCCCTCAACTCAG  
 CTTCACATATTCCATCATCTAAACTGCATCTCCCTGGCTATGGAAGAAATGGGCTTC  
 CCCGCCCTGTTCTACCGACTTCGCTAGTATAACAGCTATGGGATGTCAGCGGGGGAGTG  
 CGAGATTACCAGACACTTCAGATGCCACATGCCATGACAATGAGAATGGACCGAGGAGTG  
 TCTATGCCAACATGTTGAAACAAAGATATTCCATATGAAATGTCATGGTACCAACA  
 GAGGGCCGAAACCAAATCTCAGAGAGGTGGACAGAA

13713.1&amp;2

TCACCTTATTTCTTGTATAAAAACCTATGTTGAGCCACAGCTGGAGGCCCTGAGTCGCT  
 GCACGGAGACTCTGGTGTGGGCTTGAAGGAGGTGGTCAGTGAACCTCTGATAGGGAGACT  
 TGGTGAATACAGTCTCCTTCCAGAGGTGGGGCTCAGGTAGCTGTAGGTCTTAGAAATGGC  
 ATCAAAGGTGGCTTGGCGAATGTTGCCAGGGTGGCAGTGCAGCCCCGGCTGAGGTGTA  
 GCAGTCATCGATACCAAGCCATCATGAG

13715.4

CTGGAATATAGACCCGTGATGGACAAAACCTTGAACGAGGCTGACTGTGCCACCGTCCCC  
 CAGCCATTGGCTCTACTGATGAGACAAAGATGTGGTGTGACAGAAATCAGCTTGTAAATT  
 ATGTTAAATAGCTCATGCCATCTGCACTGCTAAACTGTCTCATACCCCTCTGCACTCTGG  
 GGAAGAAGGAGTACATTGAAGGGAGAATTGGCACCTAGTGGCTGGAGGCTTGCAGGAACC  
 CAGTGGCCAGGGACCGTGGCACTTACCTTGTCCCTGCTTCAATTCTGTGAGATGATAAA  
 ACTGGGCACAGCTTAAATAAATATAATGAAACA

13717.1&amp;2

TGAATGGGGAGGAGCTGACCCAGGAAATGGAGCTTGNGGAGACCAGGCTGCAGGGGAT  
 GGAACCTTCCAGAAGTGGGCATCTGCTGTGCTCTTGGGAAAGGAGCAGAAAGTACACA  
 TGCCATGTGGAACATGAGGGGCTGCCCTGAGCCCTCACCCCTGAGATGGGCAAGGAGGAG  
 CCTCCTTCATCCACCAAGACTAACACAGTAACTCATGCTGTCTCGGTTGTCTTGGAGCTGT  
 GGTCACTTGGAGCTGTGATGCGCTTTGTGATGAAGAGGAGGAGAAACACAGGTGGAAA  
 AGGAGGGGACTATGCTCTGGCTCCAGGCTCCAGAGCTCTGATATGTCCTCCAGATGT  
 AAAGTGTGAAGACAGCTGCCCTGGTGTGACTTGGTACAGACAATGTCTTCACACATCTCC  
 TGTGACATCCAGAGACCTCAGTCTCTTACTCAAGTGTGATGTTCTCTGTGAGTCTGG  
 GGCTCAACTGAAGAAACTGTGGAGCCCACTGCCACCCCTCCACACAGGAGCCCTATCCCTG  
 CACTGCCCTGTGTTCCCTTCCACAGCCACCTTGCTGCTCCAGGCCAAACATTGGTGGACAT  
 CTGCAGCCCTGTCAGCTCCAATGCTACCCCTGACCTTCACACTCTCACTTCCACACTGAGAATA  
 ATAATTGAAATGTGGGTGGCTGGAGAGAATGGCTCAGCGCTGACTGCTCTTCAAAGGTCCT  
 GAGTTCAAATCCCAGCAACCACATGGTGGCTCACACCCATCTGAAATGGGATCTAATACCC  
 TCTTCTGCACTGTCAGACASCTACAGTCACTTACATATAATAATAAG

*FIG. 15M*

13719.1&amp;2

GGCCGGGCGCGCGCCCCGCCACACGCACGCCGGCGTGCAGTTATAAAGGGAGAG  
 AGCAAGCAGCGAGTCAGCTGTGTTGGATCCATTCCATCGGTCTTAC  
 AGCCGCTCGTCAACTCCAGCAGCCAAGATGGTGAAGCAGATCGAGAGCAAGACTGCTT  
 TCAGGAAGCTTGGACGCTGAGGTGATAAACTTGAGTAGTTGACTTCAGCCACGTGG  
 TGTGGGCTTGCAAAATGATCAAGCCTTCTTCATTCCTCTGAAAAGTATTCCAACGT  
 GATATTCCCTGAAAGTAGATGTGGATGACTGTCAAGGATGTTGCTTCAGAGTGTGAAGTC  
 TGCATGCCAACATTCCAGTTTAAAGAAGGGACAAAAGGGGGTAATTCTGGAGCCA  
 ATAAGGAAAAGCTGAAAGCCACCAATTGAAATTAGTCTAATCATGTTCTGAAAATATA  
 ACCAGCCATTGGCTATTAAAATTGTAATTTTAAATTACAAAAAATATAAAAATGAA  
 GACATAAAACCMGTTGCATCTGGTACAATTAAACATTAAATGCTAACACTT

13721.1

TCACATAAGAAATTAAAGCAAGTTACRCTATCTTAAAAAACACAAACGAATGCATTAAATA  
 GAGAAACCCCTCCCTCCCTCCACCTCCCTCCCCACCCCTCTCATGAATTAAAGAATCTAAG  
 AGAAGAAGTAACCATAAAACCAAGTTGTGGAATCCATCATCCAGAGTGTCTTACATGGT  
 GATTAGGTTAATATTGCTTCTACAAAATTCTATTTTAAAAAAATTATAACCTTGATTG  
 CTTATTACAAAAAAATTCACTACAAAAGCTCAATTATATTGAAAAATGCTTTCCCTCCCT  
 CACAGCACCGTTTATATAGCAGAGAATAATGAAAGAGATTGCTAGTCTAGATGGGGCA  
 ATCTCAAATTACACCAAGACCGCACAGTGGTTATTACCCCTCCCTCTCATAAAG

13721.2

GGAAAGGATTCAAGAAATTAGACCACTTGCTTGCTRAGAAAAAGACAACCTCTCGTCGCAT  
 GCTGACAGACAAAGAGAGAGAGATGCCGAAATAAGGGATCAAAATGCAGCAACACGCTGA  
 ATGACTATGAAACAGCTTCTCACTAAAGTTAGCCCTGGACATGAAATCAGTGTCTTACAG  
 GAAACTCTTAAAGGGCAACAGAGAGAGGTTGAAGCTGTCTCAAGCCCTTCTCCCGTGT  
 GACAGTATCCGAGCATCTCAAGTCTAGTGTACCGTACAACTAGAGGAAAGGGGAAGA  
 GGGTTGATGTGAAAGAATCAGAGGGAAACTAGTAGTGTGTTAGCATCTCTCATCCGCTCAA  
 CCACTGGAAATGTTGCTTCAAGAAATTGATGTTGATGGAAATTATCCCGCTTGAAGA  
 ACACCTCTGAACAGGATCAACCAATGGAAAGGCTGGGAGATGATCAGAAATTGGAGA  
 CACATCACTCACTTATAAAATACCTCA

13723.1

CATGGTTTACCAAGGTTGCCAGGGCTGCTTGAACTSCTGACCTCAGGTGAATCCACCCG  
 CCTCGGCCTCCAAAGTCTGGATTACAGGCCGAGCCACCACGCCCTGGCCCCAAAGC  
 TGTTCTTTGCTTCTAGCGTAAAGCTCTCTGCCATGCAGTATCTACATAACTGACGTGAC  
 TGCCAGCAAGCTCAGTCACCTCCGTCTCTCTCTCTCTCTCTCTCAAG  
 TTCTGCTCAGTGAAGCTGAGGCTCCCACTTAAGTGTATCAGGTGAGGGTTCTTGAAACC  
 TGGTTCTATCACTCGAATTAACTCTCATGATGG

FIG. 15.V

13723.2

GATGTGTTGGACCCCTCTGTGTCAAAAAAAACTCACAAAGAATCCCTGCTCATTACAGAA  
 GAAGATGCATTTAAATATGGGTTATTTCACTTTTATCTGAGGACAAGTATCCATTAA  
 TTATTGTGTCAGAAGAGATTGAATACCTGCTTAAGAAGCTTACAGAAGCTATGGGAGGAG  
 GTTGGCAGCAAGAACATTGAACATTATAAAATCAACTTTGAGCTTATGGAAATGGACAGTAAAATGGCC  
 TTCTGCATGGGAACCTATTGAGCTTATGGAAATGGACAGTTAGCAAAGGCATGGACCG  
 GCAGACTGTGTCATGCCATTAAAGTCTTTAATGAACCTTATTAGATGTGTTAAAG  
 CAGGGTTACATGATGAAAAAGGCCACAGACGGAAAATGGACTGAAAGATGGTTGTA  
 CTAAAACCCAACATAATTCTTACTATGTGAGTGAGGATCTGAAGGATAAGAAAGGAGAC  
 ATTCTCTGGATGAAAATGCTGTAGAAGTCCTGCCTGACAAAAGATGGAAGAAAT  
 GCCTTT

13725.1

GAATGGTTCTTATTTCAAAAAGACACTTGTCAATATTCAAGTRTCAAAACAGTTGCACTATT  
 GATTCTCTTCTCCAAATCGGCCAAAGAGACCACTAAAGGAGAGTACATTAAAGC  
 CAATAAGCTGCAGGATGTACACCTAACAGACCTCCTAGAAACCTTACCAAGAAAATGGGA  
 CTGGTAGGGAAAGGAAACTTAAAGATCAACAAACTGCCAGCCCACGGACTGCAGGGCT  
 GTCACAGCCAGATGGGGTGGCCAGGGTGCACAAACCCAAAGCAAGTTCAAAATAATA  
 TAAAATTAAAGTTTGTACATAAGCTATTCAAGATTTCTCCAGCACTGACTGATACAA  
 AGCACAAATTGAGATGCCACTTCAAGACAGCAGCTCAACCCAGAAAGGGTGTGAG  
 ATGAAGTTCACTGGCTAAATCACTGGCAAAACACACTCTCTTCTTCTTCTTCAAA  
 GGANGCAGGAAGCAATTAACTGGTCACTTAAACATAAGGGGAC

13725.2

TGGGTGGGCACCATGGCTGGGATCACCAACCATCGAGGGGTGAAGCGCAAGATCCAGGTT  
 CTGCACCAAGCAGGGCAGATGATGCCAGAACGGAGCTGACCGCCCTCCAGCGAGAAAGTTGA  
 GGGAGAAAGGGGGGGGGGGAAACACGCTGAGGCTGAGCTGGGCTCCCTTGAAACCGTAGGA  
 TCCAGCTGGTTGAAGAACAGCTGGACCGTGTCTAGGAGGCCCTGGCAACTGCCCTGCAAA  
 AGCTGGAAAGAACCTGAAAAAGCTCTGATGAGACTGAGAGAGGTATGAAGGTTATTGAA  
 AACCGGGCCTTAAAGATGAAGAACGATGCACTCCAGGAAATCCAACCTCAAAAGAAC  
 TAAGCACATTGAGAACAGACCACTAGGAACATGAAAGAGGTGGCTCGTAAGTTGTGAT  
 CATGGAGGAGACTTGGAACCCACACAGCAACGAGCTTGACCTGGCAAAAGTCCCCT  
 TGCCAGAGATGGGATGAAACCAGATTAGACTGATGGACCAAAAC

13726.1&amp;2

AGGGCCNGGGTGGTGGGCCACTGGGTGACCGACTTACGCTGGCCAGACTCTCAC  
 CTGGAAAGCGCCCCGAGAGTGCACAGCGCTGAGGCTGGGAGGGAGGACTTGGCTTGAGCTTGT  
 TAAACTCTGCTCTGAGCCTCTGTCCTGCAATTAGATGGCTCCCGCAAGAAGGGTGG  
 CGAGAAAGAAAGGGGGCTCTGCCATCAACGAAGTGTAAACCCGAGAAATACACCATCAA  
 CATTCAACAGCCGATCCATGGACTGGCTTCAGAAGCGTGACCTCGGGCACTCAAAAGA  
 GATTGGAAATTGCCATGAGGAGATGGGAACCTCCAGATGTGGCGATTGACACCAAGGCT  
 CAACAAAGCTCTGGGCCAAAGGAATAAGGAATGTGCCATACCGAAATCCGGTGTGGC  
 TGTCAGAAACGTAATGAGGATGAAAGATTCAACAAATAAGCTATATACTTGGTTACCTA  
 TGTACTCTTACCACTTCAAAATCTACAGACAGTCAATGTGGATGAGAAACTAATCGCTG  
 ATCGTCAGATCAATAAAGTATAAAT

FIG. 150

13727.1

TCGGGAGCCACACTGGCCCTTCTCTCCAAAGSGCCAGAACCTCTCTTTGGAGAA  
 TGGGGAGGCCCTTGGAGACACAGAGGGTTCACCTGGATGACCTAGAGAAAATTGCC  
 CAAGAAGCCCACCTTCTGGTCCCAACCTGCAGACCCCCACAGCAGTCAGTGGTCAGGCC  
 GCTGTAGAAGGTCACTTGGCTCCATTGCTGTTCCAACCAATGGGAGGAGAAGGCC  
 TTATTTCTGCCACCATTCTCTGTACCAAGCACCTCGTTTCACTCAGTGTGTCCA  
 GCAACCGTACCGTTACACAGTCACCTCAGACACACCATTCACCTCCCTGCCAAGCTGT  
 TAGCCTAGAGTGATTGAGTCACAGTGTACACACCCGTGAATCCATTCCATCAGTCC  
 ATTCCAGTTGGCACCGCCTGAACCATTTGGTACCTGGTTAACTGGAGTCCTGTTACA  
 AGGTGGAGTCGGGCTTGTGACTCTCTCATTTGAGGGCAC

13737.2

ACCTAGACAGAAGGTGGGTGAGGGAGGACTGGTAGGAGGCTGAGGAATTCTGGTAGT  
 TTGCTGAAACCTACTGGAGAAGTCAGCATGGCACCTACTGAGAGAAAGTGCCAGA  
 AACTGCTGACTGCATCTTTAAGAGTTAACAGTAAAGAGGTAGAAGTGTGTTCTGAATCA  
 GAGTGGAAAGCGTCTCAAGGGTCCCACAGTGGAGGTCCCTGAGCTACCTCCCTCCGTGAGT  
 GGGAGAGTGAAAGCCCAGTAAGAAGAAGTGAAGCAAGGATGGGTTCTGGCTCCA  
 GGCAAGGGCTGTCTGCAGCAGGGAGCCCCACGAGTCAGAAGAAAAGAACTAATCA  
 TTGTTGCAAGAAACCTTGGCCCGATACTAGCGAAAAGTGGAGGCGNGGTGGGGCAC  
 AGGAAAGTGGAGTGATTGAGTCACAGCAGAGAAGCCTATGCACAGTGGCGAGTCCAC  
 TTGTAAAGTG

13728.1&amp;2

TTCAACCAATTGTAACAAGTATATCTAGATTAGAGTGAGCAAATCATATACAATTTCAT  
 TTCCAGTTGCTATTTCACAAATTGTTCTGTAATGCTGTTAAATTACTTAAATTAAACAAA  
 GCCAAAAATTATAATTATGACAAGAACCCATCCCTACATTAAATCTTACTTTCCACTCAC  
 CGGCCCATCTCTTCTTCTTAACCTATGCCATTAAACTGTTCTACTGGGCCCCGGCG  
 TGTGGCTCATGGCTGTAATCCAGCAATTGGGAGGCCAGGCAGGGGGATCATGAGGTC  
 AAGACATTGAGACCATCCTGGCCAAACATGGTCAAACCCCGCTGACTAAGAATACAAA  
 ATTAGCTGGGCATGGTGGGCATGCCCTGTACTCTCACTACTCGGGAGGCTAGGCCAGAA  
 GAATCGCTTGAACCCGGGAGGCAGAGGATGCAGTGAGCCCCGATCGGCCACTGCACCT  
 AGCCTGGGGCACAGACTGAGACTCTGTC

13731.1&amp;2

TGTGCCAGTCTACAGGCCATTCAGCACGGACTCTCAGAACAGATGGGTCCCCCTGTC  
 AGCCCACCCATGAGCCCCCAGCACGATATGCTCCAAATCAGGCCAGTCCCCACACCT  
 ACAAGGCCAGCAGATCCCTAATTCTCTCCAAATCAAGTGCCTCTCCCCAGCCTGTCCTT  
 CTCCACGGCCACAGTCCCAGGCCCCCCTCACTCCAGTCTCCCCAGGAATGCAAGCCTCAGCC  
 TTCTCCACACCAAGTCTCCCCACAGACAAAGTCCCCACATCCTGGACTGGTAGTTGCCAG  
 GCCAACCCATGAAACAGGGCATTTGCCAGCC

13734.1&amp;2

TGTAAAAACTTGTTTTAATTTGTATAAAATAAGGTGGTCCATGCCACGGGGGCTGTA  
 GGAAATCCAAGCAGACCAGCTGGGTGGGGGATGTAGCCTACCTCGGGGACTGTCTGT  
 CCTCAAAAACGGCTGAGAAGGCCCCTCAGGGCCCAGTCCCACAGAGAGGCCTGGATA  
 CTCCCCCAACCCGAGGGCAGACTGGGAGTGGGAGCCCCATCGTCCCCAGAGGTGG  
 CCACAGGCTGAAGGAGGGCCTGAGGCACCCAGCCTGCAACCCCAGGGCTGCAGTCCA  
 CTAAC!TTTACAGAATAAAAGGAACATGGGATGGGAAAAAAAGCACCAAGTCAGGCA  
 GGGCCCGAGGGCCCCAGATCCCAGGAGGGCAGGACTCAGGATGCCAGCACACCCTAGC  
 AGCTCCCACAGCTCTGGCACAGGAGGGCAGGGATTGGCACAGGCCCTGCTGGCCA  
 TCACGCCACATTGGAGAACTTGTCCCACAGAGGTCAAGTCGGAGGAGCTCTCGGGC  
 ACACACTGTACGAACACAGATCTCTTAAATGACGTACACACGGCGAGGCTCGGGG  
 ACAGGGCACGGGAGGTCTAGCCCCACTT

13736.2

ATGGCTGCTGGATTACGTGTAATAGGGGCTGTGGGCCATAAAATCTGAAGCCTTGAGAA  
 CCTTGGGTCTGGAGAGCATGAAAGGGAGGAAAAGAGGGCAAGTCTGAACTAAC  
 AATGACCTGTGGATTGCTGACCAAGACACAGAAGTGAAGTCTGTCTGCACTTCCC  
 ACAGACTGGAGTTTGTCTGAAAGAGCCAGTTGCTAAAAAATTGGGGTTTGTGA  
 AGAAAATCTGATTGGTGTGTAACTCAATGTGTGATTAAAATAACAGCAACAATA  
 AAAACCTGACTGGCTGTTTCTCTGATTTTACAACATTTTGACCCCTCTGAAAA  
 TTATTATACTTCACCTAAATGGAAGACTGCTGTGTTGTGAAATTGTAATTTTTAATT  
 TATTATACTCTCTCTCTTTTAAATTGCTGCAAGAATCCGTTGAGAGACTAATAAGGCTTA  
 ATATTAATTGATTGTAAATGTATATAAT

13744.2-13696.2

GGCATGGGACCCACTGGCGACCCAGGGCGGGGAGCACACGGAGCACTCCAGG  
 CGCCGGGTTGGGACCCGCTCTGGCTGATAGTCGTGTTTGGGGATCGAGGAT  
 ACTCACAGAAACCGAAAATGCGGAAACCAATCAATGTCCGAGTTACCAACCATGGATGCA  
 GAGCTGGAGTTGCAATCAGCCAAATACAACCTGGAAAACAGCTTTGATCAGGTGGTA  
 AAGACTATCGGCTCGGGGAGCTGGTACTTTGGCTCCACTATGTGGATAATAAAGGAT  
 TTCTTACCTGGTGAAGCTGGATAAGAAGGTCTGCCCAGGAGGTCAAGGAAGGAGAATC  
 CCCTCCAGTCAAGTCCGGGCAAGGTCTACCTCTGAAAGATGTGGCTGAGGAGCTCATCC  
 AGGACATCACCCAGAAACCTTCTTCAAGTGAAGGAAGGAATCCTAGCGATGAGAT  
 CTACTGGCCCCCTGARACTCCGCTCTGGGTCTACGCTGTGCAATGCCAAGTTGG  
 GGACTACCACCAAGAAG

13744.1&amp;2-13720.1&amp;2

GAAGGACTGGGATACTCAGCACTGCAACCCAAATTCAAGGGCATTCTCGGAG  
 GTCTCTGGGACAATCTCTACGGCTCACTACGGAAACTCGTTAGGGTACAACCTGAAATGCTG  
 AAAGGAAGAACACCTGCAAGAACGGAGAGAAAATTCAACCCCGCGATCGCTGATTGATC  
 TCGCTGACCAAGTCATGGCTAAAGATGACGAGGAGCGTTGTCAATTCCCTGGCTTTTC  
 GAAGTGAGTCCAGCAGCACTGAGGTATTGGCCCGGTTATGCACTGGACCACCCAGCA  
 CCAGCTCCCGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG  
 CAGCTGGTACACCAAGGGACCGGTACCGCAGCGTCAGGTTGCTCGCTCGGGCTGGGGGAC  
 GCCGGGACCAAGGGAAAGCCCGGACACTTGGACACCCCTGCGGATGCCACAGCCACAGAG  
 GGGTGGTCCCCACCGCGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGGG  
 GCGAGGGCTCGTTCTTCTTCTTCTTCTTCTTCTTCTTCTTCTTCTTCTTCTTCTTCTTCTT  
 CCACCAAGGAGGCTCAGGATTAGCACCTCCGTTGCTCCAGAGGAGCGAAGCCGAGGGGG  
 GGCGGGAGCCAGCTACAGCTGAGGCTCGGGCGGGGGGGGGGGGGGGGGGGGGGGGG  
 TCGTCTCCGTCCTCTCCATTCAAGCACACAGGGTCCGGGAAAGCTCAGCCCGGTCCCAA  
 CGGACCCCTAGCTTCGTTACCTGCGGCTCGCTTG

FIG. 15Q

14347.1

CAGATTTTATTGCAGTCGTCACTGGGGCCGTTCTGCTGCTTATTGCTGCTAGCCTG  
 CTCTCCAGCTGCATGCCAGGCCAAGGCCCTGATGACATCTCGCAGGGCTGAGAAATGC  
 TTGGCTTGCTGGCCAGAGCAGATTCCGCTTGTACAAAAGGTCTCCAGGTCAAGTCAG  
 GCTGCTCGGTCACTCAAGAGACCTCAAGCCAGTCTGGTCTTGCTGTATGATCTCCTTGAG  
 CTCTCCATAGCCTCTCCCTCCAGCTCCCTGATCTGAGTCATGGCTTCGTTAAAGCTGGACA  
 TCTGGGAAGACAGTTCTCTCTTGGATAATTGCTGGAATCAGGGCCCCGTTAGA  
 GCAGGCTTCATCTCTCTGTTCCATTGAACTCAACTGCTCCACTGGGGCCACTGTGGG  
 GGCTCAGCTCTGACCCCTGCTGCATATCTTAAGGGTGTAAAGGATATTACAGGAGCT  
 TATGCTGGT

14347.2

CTCCTCTGGTACATGAACCCAAAGTGAAGTGGACTTAACAAAGTATCTGGAGAACCAA  
 GCATTCCTGCTTGAACCTTGCATTTGATGAAAGAGCTTCGAATGAAGTGTCTACAGGTTCAC  
 AGCAAGGCCACTGGTACAGACAATCTTGAAGGTGGAAAAGCAACTTGTCTTGCATATGG  
 CCAGACAGGAAGTGGCAAGACACATACTATGGCCGGAGACCTCTGGGAAAGCCCAGAA  
 TGCATCCAAGGGATCTATGCCATGGCCTCCGGGACGCTCTCTCTGAAAGAATCAACCCCT  
 GCTACCGGAAGTGGGCTGGAAGTCTATGTGACATTCTCGAGATCTACAATGGGAAGCT  
 GTTGACCTGCTCAACAAGAAGGCCAAGCTGCGCGTGGAGACGCCAAGCAACAGG  
 TGCAGTGGTGGGGGCTGCAAGGAACATCTGONTAACTCTGCTGATGATGGCANTCAAG  
 ATGATCGACATGGCCAGGCCCTGCAGA

14348.1&amp;14350.1&amp;2

TCCCCGAAATTCAACCGACAAATTGGAAAGTGAAGATGCTATCATGAACATCAGG  
 CAAATCTTCTGGCCAAAGATCTGATGAGACGACAGGAAGAATTAAAGACCGATGGAAAGAAC  
 TTCACAATCAAGAAAATGCAAAACGTAAGAAATGCAATTGAGGCAAGACGGAGGAACGA  
 CGTAGAAGAGAGGAACACATGATEATTGCTCAACGTGAGATGGAAGAACAAATGAGGGCG  
 CCAAAGAGAGGAAAGTTACAGGCCAAATGGGCTACATGGATCCACGGGAAAGAGACATGC  
 GAATGGGTGCGGAGGAGCAATGAAACATGGGAGATCCCTATGGTTCAAGGAGGCCAGAAA  
 TTCCACCTCTAGGAGGTGGTGGTGGCATAGGTATGAAAGCTTAATCTGGCGTTCACCAG  
 CAACCATGAGTGGTCCATGATGGAAAGTGCACATGCGTACTGAGGGCTTGGCCAGGGAG  
 GTGGGGGGCTGTGGTGGACAGGGCTAGACAAATGGGGCTGGAACTCCAGCAGGAT  
 ATGGTAGAGGGAGAGAAGAGTACGAAGGC

14349.1&amp;2

TTCGTGAAGACCCCTGACTGCTAAAGACCATCACTCTCGAACGTGGAGCCCCAGTGCACACCATT  
 GACAATGTCAGGCCAAAGATCCAAGACAAAGCAAGGCAACCTCCTGACCAACAKAGGTTG  
 ATCTTGTGGAAACACGCTGGAAAGATGGACCCACCCCTGTCTGACTACAACATCCAGAAA  
 GAGTCCACCCCTGCACCTGGTGTCTCCCTCTCAGAGGTGGGATGCAAATCTCGTGAAGACCC  
 TGACTGGTAAGACCATCACCCCTCGAGGTGGAGGCCAGTGCACACCATCGAGAAATGTCAAGG  
 CAAAGATCCAAGATAACCAAGGCCATCCCTCTGATGCAAGCAGAGGTGATCTTGCTGGGA  
 AACAGCTGGAAGATGGACCCACCCCTGTCTGACTACAACATCCAGAAAAGATCCACTCTGC  
 ACTTGGTCCCTGCGCTTGAGGGGGGGTGTCTAAGTTCCCTTTAAGGTTCAACAAATTTC  
 ATTGCACTTCTCTCAATAAAACTTGTGATTC

FIG. 15R

14352.1&amp;2

GCGCGGGTGCCTGGGCCACTGGGTGACCGACTTAGCCTGGCCAGACTCTCAGCACCTGGA  
 AGCGCCCCGAGAGTGACAGCGTGAGGCTGGAGGGAGACTGGCTTGAGCTTAAAC  
 TCTGCTCTGAGCCTCTTGTGCGCTGCATTAGATGGCTCCCGCAAAGAAGGGTGGCGAGA  
 AGAAAAAGGGCCGTTGCCATCAACGAAGTGGTAACCCGAGAAATACACCATAACATT  
 ACAAGCGCATCCATGGAGTGGGCTTCAGAAGCGTGACCTCGGGACTCAAAGAGATTC  
 GGAAAATTGCCATGAAGGAGATGGGAACCTCAGATGTGCGATTGACACCAGGCTAAC  
 AACCTGCTCTGGGCCAAGGAATAGGAATGTGCCATACCGAATCGTGTGCGCTGTCCA  
 GAAAACGTAATGAGGATGAAGGATCACCAAAATAAGCTATATACTTTGGTACCTATGTACC  
 GTTACCACTTCAAAATCTACAGACAGTCAATGTGGATGAGAACTAATCGCTGATCGT

14353.1

AATTCTTTATTAATCAACAAACTCATCTCTCAAGCCCCAGACCATGGTAGGCAGCCC  
 TCCCTCTCCATCCCCCTCACCCCCACCCCTTAGCCACAGTGAGGGAAATGGAAATGAGAAGC  
 CACGAGGGCCCTGCGAGGGAAGGCTGCCACAGATGTGTGGTGAGCACAGTCAGTCAGC  
 TGTTGGCTGGGGCAGCAGCTGCCACAGCTCTCCCTATAAAATTAAAGTCTCTGCAGCCACAG  
 CTGTGGGAGAAGCATACTTGAGAACAGGCCAGTCCAGCATCAGAAGGCAGAGGAG  
 CATCACTGACTCCCAGCCATGGAAATGAACGGAGGACACAGAGCTCAGAGACAGAACAGG  
 CCAGGGGAAGAAGGAGAGACAGAAATAGGCCAGGGCATGGCGGTGAGGG

14353.2

TGATCAATCTGGTGGCTGGCACTAGCCCCAGATGATGGCTCTCTCTGGGATCCCA  
 CTGCTCCCTAAGAAATCCAAGGAGAACTCTCGGAACTCTCGGATAACCAGCTGCAAGA  
 GGCGAAGAACGTGATGGGTTACAGATGGCCACCAACCCGGGGCGTCTCANGCAGGCAT  
 GACTGGCTACGGGATGCCACGGCAAGAATCCCTGATCCCACCCAGGCCCTTGGCCCT  
 CCCACGAATGGTTAATATAATGAGATATAATTAGGAGTGACATTCCCAGAGAGCCC  
 CAGAGCTCTCAAGCTCTTCTGCAAGGGTGGGGGTTCAAGGCTGTCTGTACCTCTGA  
 AGTGCCTGCTGCCATCTCTCCCCATGCTACTAATACATTCCCTCCCCATAGCC

17182.1&amp;2

AGCGGAGCTCCCTCCCCCTGGTGGCTACAACCCACACAGGCCAGGCTCAGGCATCGAGCAG  
 AACTCCAGCGACTGGTAACCACTGACATTCAAGCTGAAGGTGCGGGACACCTACCTGGAT  
 ACACAGGTGGGGACAGACAGCTCTCATCCGCACTGTCACGGGGGGCATGTGCTCTG  
 TACCTGAAGGACAGTGAGAACGGTTCTCAGCATTCCAGTGAGCACCTGAGGCTATCACC  
 CCCACCAAGAACAAACAAACGTGAAACTGATCTCTGGCGAGGATCGGGAAACCCACGGGCGT  
 CCTACTGAGCATGATGGTCAACCGATGGCAATTGTCCTGTATGGACCTTGATGAGCACCTCAAG  
 ATCCCTAACCTCCGCTTCTGGGAAGCTCTGGAAAGCCTGAAAGCAGGAGGGGGCGTGG  
 ACTTCTGCTGGATGAAGAGTGATCTCTTCTCTGGCCCTTGGCTGTGACACAAGATC  
 CTCTGCAAGGGCTAGGCGGATTGTTCTGGATTCTTCTTCTTCTTCTTCTTCTTCTTCT  
 TTCTCTCTCTGGTGTCAATTGGAATCTGAGTAGAGTCTGGGGGAGGGTCCCCACCTTCCT  
 GTACCTCTCCCCACACCTCTCTTCTTGTACCGTCTTCAATAAAAGAAGCTGTTGGT  
 CTA

FIG. 155

17183.2

GGTCACAGCACTGCTGTTGTGTTGCCGGCCAGGAATTCCAGGCTCACAGGCTATCT  
 TAGCAGCTCGTCTCCGGTTTTAGTGCATGTTGAACATGAAATGAGGAGAGCAAAAA  
 GAATCGAGTTGAAATCAATGATGGAGCCTGAAGTTTAAGGAAATGATGTGCTTCATT  
 TACACGGGGAAAGGCTCAAACCTCGACAAAATGGCTGATGATTTGCTGGCAGCTGCTGAC  
 AACTATGCCCTGGAGCGCTTAAAGTCATGTTGAGGATGCCCTGCACTGAGTAACCTGTCGG  
 TGGAGAACGGCTGCAGAAAATCTCATCCTGGCCGACCTCACAGTGCAGATCAGTTGAAAAA  
 CTCAGGCAGTGGATTCATCAACTATCATGCTTCGGATGCTTGGAGACCTCTGGG

17186.1&amp;2

TCGTAGCCATTCTGCTTGGAGAATGACGCCACACTGACTGCTCATTTGCTGGT  
 TCCATGCCAATTGGTGAATAGAACCTCATCCGGTAGTGGAGCCGGAGGGACATCTTGTC  
 ATCAACGGTGTGGTGGCATTGGAGCATAACCAGAGCTTGTGTTCTGCCATACAGGGCA  
 AAGAGGTTGTGACAAGAGGGAGAGATACGGCATGCCATGCTGTGCAAGCCCTGATGCACAGTCC  
 TCTGCTGTGACTCTCCACTGCCAGCCGGAGGGGCTCCCTGTCGACAGATAGAAGATCA  
 CTTCCACCCCTGGCTT

17187.1&amp;2

TGGCACACTGCTCTTAAGAAACTATGAWANGATCTGAGATTTTTGCTGATGTTTTGACTCT  
 TTGAGTGGTAATCATATGCTCTTATAGATGATACATACCTCTTGCAACAAATGGAGGG  
 AATTCACTTTCATCAGTGGAGTGTCTTACTGTATAAAAAACCATGCTGTTATATGGCTTC  
 AAGTTGTAATGAAAGTCACTTAAAGAAAATAGGGATGGTCCAGGATCTCCACTG  
 ATAAGACTGTTTAAGTAATCAAGGACCTTGGTCTACAGTATAATGTGAAAAAAATG  
 AGACTTACTGGTGGAGGAAATTCTTAAAGATGGTGTGTGTGTGTGTGTGTG  
 TGTGTTGTTGTTGTTTGTGTTTAAAGGGAGGGAAATTATTATTTACCGTTGCTTGAAATT  
 ACTGKGTAATATATATGTGATAATGATTCCTTGTGTTGCMACTAAAATAGGVCTGTATA  
 ACTWCTARATGCMTCCTGGKSTTGATTTCCMAGATATTGATGATAMCCCTTAATT  
 GTAAACCYGCCTTTCCCTTGTCTTCMATTAAAGTCTTATTCMAAG

17191.1&amp;99.1

GGGGGTAGGCTCTTATTAGACGGTTATTGCTGACTACAGGGTCAGAGTCCAGTCTAAC  
 AGTCTCAGAGCCCCCGCGTTAGCCCCAGAAATGTTGATTTCTCCCTATTGATCACAGTG  
 GGTGGTTCTCAGAAAAAGCCCCAGAGGGAGGGACCAGTGAAGCTCAAGGTTAGAAGTG  
 GAACCTGGAGGCTTCAGTCACATGCTCTCCACGGCTTCCAGGCTGGGAGCAAGGAGGA  
 GATGCCCATGACGTCCCAGGTCTCCCATCTGACACCCAGTGAAGTCTGGTAGGACAGCAG  
 CGCAGGCCCTGCTCTGCCAGGAGGCCATCATGGTAGGCAGCATTCAGGGTCAGAGGT  
 CTGAGTCCCGGAATAGGAGCAGGGCAGGTCCCTGCCAGAGGGCACTTCTGGCTGAAGAC  
 AGCTCATTGACCCCCCTGCACTACAGGCTAGTGCCTTGGACCAAGCCCACAGCCTGGTA  
 AGGGCCCTGCCAGGCCACGGCCAGGAGGA

FIG. 157

17192.1&amp;2

TAATTTCTTAGTCGTTGGAACTCTTAAGCATGCCAAAGCTTGAACAGAAGGGTCACAA  
 AGGAACCAGGGTTGTCTTATGGCATCCAGTTAACGCCAGAGCTGGGAATGCCTCTGGGTCA  
 CCACATCAGGAGCAGAAGCAGTTGACTTGTGGTCTGCTGCCACGGTTGGGGCCACC  
 ACGCCCACGTCACCTCTCCCTGCCACGTCCTGGGGCCAAAGGTCTCCAAA  
 TTGATCTCCAGCTGAGACGTTATATCATTTGCTGGCTCCGGAAAATGATGGTCCATAACCG  
 AATCTTCAGCATGAGCCTCTCACTCTTGTATGAAGAACAAATCCCTCTCCACTGC  
 CCATCAGCACCTTCATTGGTTTCGGATATAAATTCTACTTTGCCCCGTCCTTATTITGA  
 ATAGCCTTCACTCATCCAAAGTCATCTCTTGGACCCCTCTTACCTCTCAACTTCA  
 TTCTCTTATTTCACTGTCGCACTGGATGATGTTCTCACCTCAAGGTGTTCCAGTC  
 ACATTTGATTGATCCAAAGTCAGTTAATTGCTTTGACAGTTCCCCAGTTGTGAGATCCGCT  
 ACCTCCACGTTGCTCTGCTTCAGGCCAGATCTATCACTTCACTATGCCATCAAATT  
 CACGTTGCCACGAGAAATCAAATCCATCTCTCGGCCATTCCACGTCACGGCCCCCTCG  
 ACCTCTTCAAGAACACCACGACCTCGAATAGGTGGTCAATAATCGGTCTATCAACTGAA  
 AATTGCTCTCTTCACTTCAAGTGCTTTGATCTTGTACGGAGGTGGTGG  
 CCTTCTGGTCTCTATCAAATTATTTCCCTGACCCCTGAAGTTGTTGATCAGGTCTTCTCC  
 AACTCGTGC

17193

AAGCGGATGACCTGACTCAGCCAACTCTAGCCCCCTTCCCTGGGCTGCTGTTGGTCTC  
 GACATCAGTGACAGACCGAACAGACCACTCAAGGCTACGGGACGCCGGGGCGCTT  
 GCGAAGATGAAGTTGGCTCCCTCTCCCTCCGGCACGCCCTATGCTGGCTTGTCTAAATG  
 GAATCAAGACTGTGGAGACCGGCTGGCTCTGTCGAGCAGCCACGGAAACTGTACCA  
 TCGCCGTCCACATTGCTCAAGGGACTGGCAAGGCGATGCTGTCGGGAGCTGCTGGTGG  
 AGAGACTCGGGATGACTTCTGCTCAAGATTGACGCTTGGGAAACTTGTCAATTGCCCCGAAGACT  
 GTGGAGGAGTGAAGGTTGGAACCTAGAAAATCAAGCTGCACGACCAACCTGAAGCAGA  
 ACTACCTGACTGTGATTCAACCCAGGTGGTACTGGAGGCCATACCTGGAAAGGAG  
 GCAAGGATGATTCAGGTAGACATCCCAGACCCACCTGATCCCCTTGGGCATGAAGTGT  
 GACAAGTGTGGCTCTGAAAGGAATGTCRGAGAAACAGCTAAATCATGCCACCTTC  
 AATTGCCCACGTCGACCCAGACCTGTATAAAATTAGGTTAAAGATGAATTCCACTGCTTTG  
 GAGAGTCCCACCCACTAACGACTGTGCACTGTAACAGGTTCCCTTGCTCAGATGAAGGA  
 GTAGGGGGTGGGGCTTCTTGTGTGATGCCCTTACGGCAACACGGCAATGTCTCAAGTA  
 CTTGACCTTACGGTACAGAACCGAAAGCTGCCAGTAAATGTCAGCATTOCTGCTAAATT  
 GGTCTGCTAGTTCTGGATTGACAAATTGTTGATGATGA

FIG. 15U

## 16443.1.edit

TCGAGCGGCCGCCGGCAGGTCTGGAGTCCAGCACGGGAGGCAGGTGGCTTGAGTTGT  
 TCTCCGGCTGCCATTGCTCTCCCACCCACGGCGATGTCGCTGGATAGAACCCCTTGAC  
 CAGGCAGGTCAGGCTGACCTGGTCTTGGTCATCTCCTCCGGATGGGGCAGGGTGTAC  
 ACCTGTGGTCTCGGGGCTGCCCTTGGCTTGGAGATGGTTTCTGATGGGGCTGGGA  
 GGGCTTGTGGAGACTTGCACTTGACTCTTGCCATTCAACCAGTCCTGGTGCANGAC  
 GGTGAGGACGCTNACACACGGTACGNGCTGGTACTGCTCCCTCCGGCTTGTCTTG  
 GCATTATGCACCTCCACGCCGTGACGTACCAATTGAACCTGACCTCAGGGTCTCGTGGC  
 TCACGTCCACCACCCACCGATGTAACCTCAAANCTCGGNCGCGANCACGC

## 16443.2.edit

AGCGTGGTCGGGGCGAGGTCTGAGGTTACATGCGTGGTGGACGTGAGCCACGAAGA  
 CCCTGAGGTCAAGTCAACTGGTACGTGGACGGCGTGGAGGTGCAATAATGCCAAGACAAA  
 GCCGCAGGAGGAGCAGTACAACAGCACGTACCGTGTGGTCAGCGTCCTCACGGTCTGCA  
 CCAGGACTGGCTGAATGGCAAGGAGTACAAGTGCAAGGTCTCAACAAAGCCCTCCAGC  
 CCCCATCGAGAAAACCACTTCCAAAGCCAAGGGCAGCCCCGAGAACACAGGTGTACAC  
 CCTGCCCCCATCCCGGGAGGAGATGACCAAGAACCGAGTCAGCCTGACCTGCTGGTCAA  
 AGGCTTCTATCCCAAGCGACATGCCCTGGAGTGGAGAGCAATGGGCAGCCGGAGAACAA  
 ACTACAAGACCAACGCCCTCCGTGCTGGACTCCGACACCTGCCGGCGGCCGCTCGA

## 16444.2.edit

ACCGTGGTTNCCCCGAGCTCCAAACCAAGGTGCAACCTGGATGCCATCAAAGTCTTCTG  
 CAACATGGAGACTGGTGAAGACCTGGCTGATACCCACTCACCCCCAGTGTGGCCAGAAGAA  
 CTGGTACATCAGCAAGAACCCCCAAGGACAAGAGGCATGTCTGGTCTGGCAGAGCATGAC  
 CGATGGATTCCAGTTGGAGTATGCCGGCAGGCCCTCCGACCTGCCGATGTGGACCTGCC  
 GGCGCGNCGCTGA

## 16445.1.edit

ACCGTGGTCGGGGCGAGGTCAAGAACCCCCCGACCTGCCGTGACCTCAAGATGTGC  
 CACTCTGACTGGAAGACTGGAGACTACTGGATTGACCCCAACCAAGGTGCAACCTGGAT  
 GCCATCAAAGTCTTCTCCAAACATGGAGACTGGTGAAGACCTGGCTGATACCCACTCAGCCA  
 GTGTGGCCAGAAGAACCTGCTACATCAGCAAGAACCCCCAAGGACAAGAGGCATGTCTGGT  
 TCGGGAGAGGATGACCGATGGATTCCAGTTGGAGTATGCCGGCAGGCCCTGCCGACCTG  
 CCGATGTGGACCTGCCGGCGGCCGCTCGA

## 16445.2.edit

TCGAGCGGTGGCCGGGGAGGTCCACATGGCAGGGTGGAGCCCTGGCCCATACTCG  
 AACTGGAATCGATCGNCATGCTCTGCCGAACCAGACATGCCTCTGNCTGGGTCT  
 TGCTGATGTACCAAGNTCTCTGGGCACACTGGGCTGAGTGGGTACACGCAGGTCTCACC  
 ANTCTCCATGTTGCANAAGACTTTGATGGCATCCAGGTTGCAGCCTGGTTGGGTCAATC  
 CAGTACTCTCACTCTCCAGACAGAGTGGCACATCTTGAGGTACGGCAGGTGCGGGCG  
 GGTTCTGACCTCGTCCGACCGCT

## 16446.1.edit

TCGAGCGGCCGGGGAGGTCCCTCAGAGCGGTAGCTGTTCTATTGCCCGGCAGC  
 CTCCATAGATNAAGTTATGCANGAGTTCTCTCCACGTCAAAGTACCAAGCGTGGGAAGG  
 ATGCACGGCAAGGCCAGTGAECTGCCTGGCGGTGCAGTATTCTCATAGTTGAACATATC  
 GCTGGAGTGGACTTCAGAATCTGCCTCTGGAGCACTGGGACAGAGGAATCCGCTGC  
 ATTCCCTGCTGGTGGACCTCGGCCGACCGCT

## 16446.2.edit

AGCGTGGTCGGGCCAGGTCCACCAACCGAGGAATGCAGCGGATTCCTGTCCCAGTGC  
 TCCCAGAACGGAGGATTCTGANGACCACTCCACGGATATGTCACACTATGAAGAAATCTG  
 CACCGCCAACGGAGTCACGGGGCTTCCCGTGCATCTTCCCACGGCTGGTACTTGACGTG  
 GAGAGGAACCTCTGCAATAACTCATCTATGGAGGCTGCCGGGGCAATAAGAACAGCTAC  
 CGCTCTGAGGAGGACCTGCCGGGGCGCTCGA

## 16447.1.edit

TCGAGCGGCCGGGGAGGTCCACATGGCAGGGTGGAGCCCTGGCCCATACTCG  
 AACTGGAATCCATCGTCATGCTCTGCCGAACCAGACATGCCTCTGTCTGGGTCT  
 TGCTGATGTACCAAGTTCTCTGGGCACACTGGGCTGAGTGGGTACACGCAGGTCTCACC  
 AGTCTCCATGTTGCAGAAGACTTTGATGGCATCCAGGTTGCAGCCTTGCTGGGTCAATC  
 CAGTACTCTCACTCTCCACCCAGAATGGCACATCTTGAGGTACGGCAGNTGCGGGCG  
 GGTTCTGACCTCGGCCGACCGCT

## 16447.2.edit

AGCGTGGTCGCGGCCGAGGTCAAGAAACCCGCCGCACCTGCCGTACCTCAAGATGTG  
 CCACTCTGGCTGGAAGAGTGGAGAGTACTGGATTGACCCCAACCAAGGCTGCAACCTGGA  
 TGCCATCAAAGTCTTCTGAAACATGGAGACTGGTGAGACCTGCGTGTACCCCACTCAGCCC  
 AGTGTGGCCCAGAAGAACGGTACATCAGCAAGAACCCCAAGGACAAGAGGCATGTCTGG  
 CTCGGCGAGAGCATGACCGATGGATTCCAGTTGAGTATGGCGGCCAGGGCTCCGACCC  
 GCCGATGTGGACCTGCCCCGGCGCTCGA

## 16449.1.edit

AGCGTGGTCGCGGCCGAGGTCTGTCAAGTGGCACTGGTAGAAGNTCCAGGAACCC  
 ACTGTAAGGGTTCTTCATCAGTCCAACAGGATGACATGAAATGATGTACTCAGAAGTGT  
 CTGNAATGGGGGCCATGAAATGGTTGNCCTGAGAGAGAGCTTCTGCTACATTCCGG  
 GTATGGTCTTGGCTATGCCCTATGGGGTGGCCGTTNGGGCGGTGNGGTCCGCCCTAAAA  
 CCATGTTCCCTCAAGATCATTTGTTGCCCACACTGGGTTGCTGACCANAAGTGCCAGGAA  
 GCTGAATACCAATTCAGTGTCAATACCCAGGGTGGGTGACGAAAGGGTCTTGAATGT  
 GGAAGGAACATCCAAGATCTGNTCCATGAAAGATTGGGTGTGAAAGGGTACCAAGTT  
 GGGAGCTCGCTGTCTTTCTTCCAATCANGGGCTCGCTCTGAAATATTCTTCAGGG  
 AATGACATAAAATTGTATATTGGTTCCAGGCCAG

## 16450.1.edit

TCGAGCGGCCGCCCCGGCAGGTCCACCAACACCCAAATTCCCTGCTGGAATCATUGCA  
 GCGCACCGATTACCGCTTACATCAAGTATGAGAACGCTGGCTCTCCAGAGA  
 AGTGGTCCCTCGCCCCCCCCCTGGTGTACAGAGGCTACTATTACTGGCTGGAACCGGG  
 ACCGAATATACAATTATGTCATTGCCCTGAAGAAATAATCAGAACAGCGAGCCCTGATTG  
 GAAGGAAAAGACAGACGGAGCTTCCCCAACTGGTAACCCCTCCACACCCCAATCTTCATG  
 GACCAAGAGATCTGGATGTTCTTCCACAGTTCAAAAGACCCCTTCGTCACCCACCC  
 GTATGACACTGGAAATGGTATTCACTTCTGGCACTTCTGCTGAGCAACCCAGTGTGG  
 CAACAAATGATCTTGTGAACTGCTTCTGGCGGACCACACCCGCCACAACGGGGACC  
 CCCATAAGGCATAGGCCAAGAACATACCCGCGAATGTAGGACAAGAACCTCTNCTCAN  
 ACAACATCTCATGGGCCCCATTCTGACACTTCTGACTACATCANTCATGGCATCTG  
 GTGGCACTGATAAAAACCCCTACAGTTA

## 16450.2.edit

AGCGTGGTCGCGGCCGAGGTCTGTCAAGTGGCACTGGTAGAAGTTCCAGGAACCC  
 ACTGTAAGGGTTCTTCATCAGTCCAACAGGATGACATGAAATGATGTACTCAGAAGTGT  
 CTGGAAATGGGGCCATGAGATGGTTGCTGAGAGAGAGCTTCTGCTACATTCCGG  
 TATGGTCTTGGCTATGCCCTATGGGGTGGCCGTTGGCGGTGTTGCTCCCTAAAAAC  
 CATGTTCTCAAGATCATTTGTTGCCCACACTGGGTTGCTGACCAAGTGCCAGGAAG  
 CTGAATACCAATTCAGTGTCAATACCCAGGGTGGGTGACGAAAGGGCTTTGAACTGTG  
 GAAGGAAACATCCAAGATCTGCTGCAAGATTGGGTGTGAAAGGGTACCAAGTTG  
 GGAAGCTCGTCTGTCTTTCTTCCAATCANGGGCTCGCTCTGATTATTCTTCAGGG  
 AATGACATAAAATTGTATATTGGCTCCGGGTCAGCCAATAATAACCCCTGTGACA  
 CCANGGGGGCCGAAGGAACT

## 16451.1.edit

AGCGTGGTCGCGGCCGAGGTCTCACCAAGGGTACCCACATCATAGTGGAGGA  
 CTGAAAGACCAGCAGAGGCATAAGGTCGGGAAGAGGTGTTACCGTGGCAACTCTGTC  
 AACGAAGGCTTGAACCAACCTACGGATGACTCGTGTTGACCCCTACACAGTTCCATT  
 ATGCCGTTGGAGATGAGTGGGAACGAATGTCTGAATCAGGCTTAAACTGTTGCCAGTG  
 CTTANGTTTGAAGTGTCAATTAGATGTGATTCACTAGATGGTGCATGACAATGGT  
 GTGAACCTACAAGATTGGAGAGAAGTGGGACCGTCAGGGAGAAAATGGACCTGCCCGGGC  
 GGCGCTCGA

## 16451.2.edit

TCGAGCGGCCGCCCCGGGAGGTCCATTTCCTCCCTGACGGTCCCACCTCTCTCCAATCTTGT  
 AGTCACACCAATTGTCACTGGCACCATCTAGATGAATCACATCTGAAATGACCACTTCCA  
 GCCTAACGCACTGGCACACAGTTAAAGCTGATTCAAGACATTGTTCCCACTCATCTCCA  
 ACGGCATAATGGGAAACTGTGTAGGGGTCAAAGCACAGAGTCATCCTAGGGTTGGTCAAG  
 CCTTCGNTGACAGAGTTGCCACGGTAACAACCTCTCCCGAACCTATGCCCTGCTGGT  
 CTTTCAGTGCCTCCACTATGATGTTGAGGTGGTACCTCTGGTGAGGACCTCGGCCGCGAC  
 CACGCT

## 16452.1.edit

AGCGTGGCCGCGGCCGAGGTCCATTGGCTGAAACGGCATCACTTGGAAAGCCAGTGATCG  
 TCTCAGCCTGGTTCTCACCTAATGGTGTAGGGTCTCACTGACATCTGTCACACGAGC  
 CCTTCCTCGTGGCTGACATTCTCACAGACTGGTCAACAACACCTGACCTGGTCTGCTTGTC  
 AAAGTGTCTTAAAGAATCATAGACACTCACTTCAATTGGCGNCCACCATAAAGTCTGATA  
 CAACACCGGAATGACCTGTCAGGAAAC

## 16452.2.edit

TCGACCGGGCGCCGGGGAGGTCTCACAGACCCGGTTCTGAGTACACAGTCAGTGTGGTTGC  
 CTTGACGATGATAAGGAGAGCCAGCCCCCTGATTGGAAACCCAGTCCACAGCTATTCTGCA  
 CCAACTGACCTGAAGTTCACTCAGGTACACCCCACAAGCCTGAGGGCCCAGTGGACACCA  
 CCCATGTTCAAGTCACCTGGATAATCGAGTGGGGTGACCCCAAGGAGAAAGACCGGACCA  
 ATGAAAGAAATCAACCTTCTCTGACAGCTCATCCGTGGTTGATCAGGACTTATGGCGG  
 CCACCAAATAAGTGAAGTGTCTATGCTCTTAAAGGACACTTGTACAAGCAGACCAAGCTCA  
 GGGTGTGTCACCACTGAGAGAATGTCACCCCCACCAAGAAGGGCTCGTGTGACAGATGC  
 TACTGAGACCAACCATGACCAATTAGCTGAGAACCAAGACTGAGACGATCACTGGCTTCA  
 AGTGTGATGCCGTTCCACCCAAAGGACCTCGGGCGGGACACGCTT

## 16453.1.edit

AGCGTGGTCGCGGCCGAGGTCTGGCCGAAC TGCCAGTGACAGGGAAAGATGTACATGTTA  
 TAGNTCTTCTCGAAGTCCCAGGGCCAGCAGCTCCACGGGTGGCTCCTGCCTCCAGGCGCT  
 TCTCATTCTCATGGATCTTCTTCACCGCAGCTCTGCTTCAGTCAGAAGGTTGTGTCC  
 TCATCCCTCTCATACAGGGTACCAGGACGTTCTGAGCCAGTCCCGCATGCCAGGGGA  
 ATTCGGTCAGCTCAGACTCCAGGAACGGGGGATGTATTGCAAGGCCAGTGTAGTCCA  
 AGTGGAGCTTGTGGCCCTTCTGGTGCCTCAAGGTGCACTTGTGGCAAAGAAGTGGCA  
 GGAAGAGTCGAAGGTCTTGTCTTGTCAAGCTGCACACCTTCTCAAACCGCCAATGGGGCT  
 GGGCAGACCTGCCCGGGCGGCCGCTGA

## 16453.2.edit

TCGAGCGGCCGCCGGCAGGTCTGCCAGCCCCATTGCGAGTTGAGAAGGNGTGCA  
 GCAATGACAACAAGACCTTCGACTCTTCTGCACCTTCCACAAAGTGCACCTGGA  
 GGGCACCAAGAAGGGCAACAAGCTCCACCTGACTACATCGGGCTTGCAAATACATCCC  
 CCCTTGCCTGACTCTGAGCTGACCGAATTCCCTGCGATGCCGGACTGGCTCAAGAAC  
 GTCTGGTCACCTGTATGAGAGGGATGAGGACAACAACCTTCTGACTGAGAAGCANAAG  
 CTGCCGGTGAAGAANATCCATGAGAATGAAAGCGCCTGNAGGCANGAGACCACCCGT  
 GGAGCTGCTGCCCGGGACTTCGACACAACTATAACATGTACATCTTCCCTGTACACTGG  
 CAGTCGGCCAGACCTGCCCGGCCGACCCCT

## 16454.1.edit

AGCGTGGNTCCGGACGACGCCAACAAAGCCATTGTATGTAGTTTANTTCAGCTGCAAN  
 AATACCNCCACCATCCACCTTAACAAACAGCATATGCAAGACA

## 16454.2.edit

TCGAGCGGTGCCCGGGCAGGTCTGGCCGGATAGCACCGGGCATATTTGGAATGGATGA  
 GGTCTGGCACCTGAGCAGCCCAGGGACGGACTTGGTCTTAGTTGAGCAATTGGCTAGGA  
 GGATAGTATGCAGCACGGTTCTGAGCTCTGGGATAGCTGCATGAAGNAACCTGAAGGA  
 GGCCTGGCTGGTANGGGTTGATTACAGGGCTGGAACAGCTCGTACACTGCCATTCTCT  
 GCATAACTGGNTAGTGAGGGCAGCTGGGCTCTTCTTGCCTGAGCTAAAGCTACATA  
 CAATGGCTTGNGGACCTCGGCCGACCCGCTT

## 16455.1.edit

TCGAGCGGCCGCCGGGCAGGTCCATTTCCTCCCTGACGGTCCCACCTCTCTCCAATCTTGT  
 AGTTCACACEATTGTATGACACCATCTAGATGAATCACATCTGAAATGACCACTTCCAAA  
 GCCTAACGACTGGCACAACAGTTAAAGCTGATTGAGACATTGTTCCCACTCATCTCCA  
 ACGGCATAATGGGAAACTGTGTAGGGGTCAAAGCACAGTCATCCGTAGGTGGTTCAAG  
 CCTTCGTTGACAGAAAGTTGCCACGGTAACAACCTCTCCGAACCTTATGCCCTGCTGGT  
 CTFTCAAGTGCCCTCACTATGATGTTGTAGTGGCACCTGGTGAAGGACCTCGGCCGGA  
 CCACGGT

## 16455.2.edit

AGCGTGGTTGCGGCCGAGGTCTCACCANAGGTGCCACCTACAAACATCATAGTGGAGGC  
 ACTGAAAGACCAGCAGAGGCATAAGGTCGGGAAGAGGTTGTTACCGTGGGAACTCTGT  
 CAACGAAGGCTTGAACCAACCTACGGATGACTCGTGTGTTGACCCCTACACAGNTCCCCAT  
 TATGCCGTTGGAGATGAGTGGGAACGAATGTCTGAATCAGGTTAAACTGTTGCCCCAGT  
 GCTTANGTTGGAAAGTGGTCAATTCAAGATGTGATTCACTANATGGTGTATGACAATGG  
 TGNGAACTACAAGATTGGAGAGAACTGGNACCGTCAGGGGANAAATGGACCTGCCGG  
 CGGGCNCGCTCGA

## 16456.1.edit

AGCGTGGTCGCCGCCGAGGTCTGGCTTCTGCTCAGTGATTATCCTGAACCATCCAGGCC  
 AAATAAGCGCCCGCTATGCCCTGAAATTGGATTGCCACACGGCTCACATTGCAATGCAAGTT  
 TGCTGAGCTGAAGGAAAGATTGATC

## 16456.2.edit

TCGAGCGGCCGCCGGGCAGGTCCATTGAAACAAACAGTTCTGAGACCGTTCTCCACCA  
 CTGATTAAGAGTGGCGCCGGTATTAGGGATAATATTCAATTAGCCTTCTGAGCTTCT  
 GGCGAGACTGGTGAACCTTCCACCTCCAGCAGCCCTCTGTCACAGCTTGTGACACC  
 CACCGCAACTGTCTGTCATATCACGAACAGCAAGCGACCCAAAGGTGGATAGTCTGA  
 GAAGCTCTCAACACACATGGGCTTCCAGGAACCATATCAACAATGGCAGCATACCAAG  
 ACTTCAAGAAATTAAAGGCCATCTCCAGCTTTTACCAAGAACGGCGATCAATTCTTCCCT  
 CAGCTCAGCAACTTCCATGCAATGTGACCGG

FIG. 15A4

## 16459.1.edit

TCGAGCGGGCCGCCGGCAGGTCCAGAGGGCTGTGCTGAAGTTGCTGCTGCACGGAG  
 CCACTCCAATTGCTGGCCGTTCACTCCCTGGAACTTCACTAACAGATCCAGGCAGCCTT  
 CCGGGAGCCACGGCTTCTGTGGNTACTGACCCCAGGGCTGACCACAGCCTCTCACGGAG  
 GCATCTTATGTTAACCTACCTACCATTGCGCTGTGTAACACAGATTCTCTGCGCTATGTT  
 GGACATTGCCATCCCATGCAACACAAGGGAGCTCACTCAGNNGGTTGATGTGGTGGA  
 TGCTGGCTCGGGAAGTTCTGCGCATCGTGGCACCATTCCCGTGAACACCCATGGGANGN  
 CATGCCCTGATCTGGACTTCTACAGAGATCTGAAAGAGATTGAAAAGAAGAACAGGCTGN  
 TTGCTGANAAAGCAAGTGACCAAGGANGAAATTCCANGGGTGAAANGGACTGCTCCCGCT  
 CCTGAATTCACTGCTACTCAACCTGANGNTGCAGACTGGCTTGAAAGGNGNACANGGCC  
 CTCTGGGCCATTAAAGCANCTCCGGTCGCGAACACGNT

## 16459.2.edit

AGCGTGNGTCGCGGCCGAGGTGCTGAATAGCCACAGAGGGCACCTGTACAACCTTCAGACC  
 AGTCTGCAACCTCAGGTGAGTAGCAGTGAACCTCAGGAGCGGGAGCAGTCCATTCAACCT  
 GAAATTCCCTCTTGGNCACTGCCTTCTCAGGAGCAGCCCTGCTCTTCTTCAATTCTCTTCA  
 GGATCTCTGAGAAGTACAGATCAGGCATGACCTCCATGGGTGTTACGGGAATTGGTG  
 CCACGCATGCGCAGAACCTCCCGAGGCCACCATCCACCATCAAACCCACTGAGTGAGCT  
 CCCTTGTGTTGATGGATGGCAATGTCACATAGGGAGAGGGAGAATTCTGTGTTACAC  
 AGCGCAATGGTAGTAGGTTAACATAAGATGCTCCCGAGAGGAGCTGGTGGTCAGCCCTG  
 GGGTCAAGTAACCACAAAGAACCCGTGGCTCCCGAAGGCTGCTGGATCTGGTTAGTGA  
 GGNNTCCAGGAGTGAAGCGGCCAACAAATTGGACTGGCTTCACTGGCAAGCAGCAAACCTCA  
 GCACAAACCCCTCTGGACCTGCCCCGGCGGCCCTCGA

## 16460.1.edit

TCGAGCGGGCCGCCGGCAGGTCCAATTCTCCCTGACGGNCCCACCTCTCTCCAATCTTGT  
 AGTTCAACCAATTGTCATGGCACCATCTAGATGAATCACATTCTGAAATGACCACTTCCAAA  
 GCCTAACGCACTGGCACAAACAGTTAACGGCTGATTCAAGACATTGCTCCCACTCATCTCCA  
 ACGGCATAATGGGAAACTGTGTAGGGGTCAAAACGACTCATCCGTAGGTTGGTCAAG  
 CCTTCGTTGACAGAGTTCCCCACGGTAACAAACCTCTCCCGAACCTTATGCTCTGCTGG  
 GCTTCAGNNGCCTCCACTATGATGTTACGGGGGGACCTCTGGNGANGACCTCCGGCG  
 GACCAACGCT

## 16460.2.edit

AGCGTGCTGGGGCCGAGGTCTCACCAAGAGGTCCCACCTAACACATCATAGTGAGGCC  
 CTGAAAGACCAAGCAGAGGCCATAGGCTGGAAAGAGGTTGTTACCGTGGCAACTCTGTC  
 AACGGAGGCTTGAACCAACCTACGGATGACTCGTGTGTTGACCCCTAACAGTTCCATT  
 ATGCCGTTGGAGATGACTGGGAACGAATGTCGATTCAGGCTTTAAACTGTTGTGCCAGTG  
 CTTANGCTTGAAGTGCTCAATTCAAGATGTGATTCATCTAGATGGTOCCATGACAATGG  
 NGNGAACTACAAGATTGGAGAGAACCTGGNACCCNACGGGAGAAAATGGACCTGCCCCGG  
 CGGCCOCTCGA

## 16461.1.edit

ACCGTGGTCGGCCGAGGTCCACATCGGCAGGGTCGGAGCCCTGCCGCCATACTGAA  
 CTGGAATCCATCGGTCACTGCTCTGCCGAACAGACATGCCCTTGCTCTGGGTTCTGC  
 TGATGTACCACTTCTGGGCCACACTGGCTGAGTGGGTACACCGCAGGTCTCACCACT  
 CTCATGTTGAGAAGACTTTGATGGCATCCAGGNTGCAACCTTGGTGGGTCAATCCAG  
 TACTCTCCACTCTCCAGCCAGAGTGGCACATCTGAGGTACGGCAGGTGGCGNCGGGG  
 NTITGCGGCTGCCCTGGNCTTGGNTGTNCTCNATGTGGCTCA

## 16461.2.edit

TCGAGCGGCCGCCCCGGGAGGTCTCGGGTCCGACTGGTGTGCTGGTCTGGTCCCC  
 CGGGCCCTCTGGACCTCTGGCCCCCTGGTCTCCCAGCGCTGGTTGACTTCAGCTTC  
 CTGCCCCAGCCACCTCAAGAGAACGCTCACGATGGTGGCCCGTACTACCGGGCTGATGAT  
 GCCAATGTGGTCTCGTGGACCGTGACCTCGAGGGGACACCAACCTCAAGAGGCTGAGCCAG  
 CAGATCGAGAACATCCGGAGCCCCAGGGCAAGNCGAAGAACCCGCCGCACCTGCCGT  
 GACCTCAAGATGTGCCACTGACTGGAGAGTGGAGACTGGATTTGACCCAAACCAA  
 GCTGCAACCTGGATGCCATCAAAGTCTCTGCAACATGGAGACTGGTGGAGACCTGCGTGTA  
 CCCACTCAGCCCAGTGTGGCCAAAAGAACCTGGTACATCAGCAAGAACCCAAAGGACAA  
 GAAGCATGTCTGGTTGGCGAGAACATGACCGATGGATTTCAGTTGAGTATGGGGCA  
 GGGCTCCGACCCCTGCCATGGGACCTTGGCCCGAACACGCT

## 16463.1.edit

ACCGTGGNNGGCCGAGCTATAAATATCCAGNCCATATCTCCCTCACACGCTGANAG  
 ATGAAGCTGTNAAAGATCTCACGGTGGAAAACCAT

## 16463.2.edit

TCGAGCGGCCGCCCCGGGAGGTCTCTGAGACTGGACTGTGTACACTGCCAGGCTTCCAG  
 GGCTCCAACCTGGAGACGGCTCTGGGACAGTCTCTGTAATCGCGAAAGCAACCATG  
 GAAGACCTGGGGAAACACCAATGGTTATCCACCCCTGAGATCTTGAAACAACCTCATCT  
 CTCAGCGTGGAGGGAGGCTCTGGACTGGATATTCTACCTCGGCCGACCACGCT

## 16464.1.edit

CGAGCGGGCGACCGGGCAGGTNCAGACTCCATTCANANAACCATAAGCCAGATGTCAG  
 AAGCTACACCATCACAGTTTACAACCAGGCACTGACTACAAGANCTACCTGCACACCTTG  
 AATGACAATGCTCGGAGCTCCCTGTGGTCATCGACGCCACTGCCATTGATGCCACCAT  
 CCAACCTCGTTCTGGCCACCACACCAATTCTTGCTGGTATCATGGCAGCCGCCACG  
 TGCCAGGATTACCGGTACATCATCNAGTATGANAAGCTGGGCTCTCCCAGAGAGAAGNG  
 GTCCCTCGGGCCCTGNTGTCCANAGNTACTATTACTGNGCNGCAACCGGAACC  
 GATATCNATTIGNCATTGGCCTAACAAATAATTA

## 16464.2.edit

AGCGTGGTTCGCGGCCGANGTCCTGTAGAGTGGCACTGGTAGAAGTCCAGGAACCTG  
 AACTGTAAGGGTTCTCATCAGNGCAACAGGATGACATGAAATGATGTACTCAGAAGTG  
 TCCCTGGAAATGGGGCCCATGAGATGGTTGTGAGAGAGAGCTTCTGNCCCTGTCTTTCC  
 TTCCAATCAGGGGCTCGCTCTCTGATTATTGGTCAGGGCAATGACATAAAATTGATATTG  
 GGTCCCGGNTCCAGGCCAGTAATAGTANCTCTGTGACACCAGGGCGNGCCGAGGGACC  
 ACTTCTCTGGGAGGGAGACCCAGGCTCTCATACTTGATGATGTAACCGGTAACTCTGGCAC  
 GTGGCGGCTGCCATGATACCAGCAAGGAATTGGGTGTGGTGGCCAGGAAACGCAAGGTTG  
 GATGGNGCATCAATGGCACTGGAGGCCCTGATGACCACAGGGGAGCTCCGACATTGTC  
 ATTCAAGGTG

## 16465.1.edit

AGCGTGGNCGGCCGAGCTCCAGGCCGGCTGTGCCACCTTCTCTCTGCCAACGAT  
 AAGGAGGGTNCTGCCCTCAGGAGAACATTAACNTCCCCAGCTCGGCTCTGCCGG

## 16465.2.edit

TCGAGCGCCCCCCCCGGGAGGTTTGGTGAAGTGGNTACTTTATTGGNTGGAAAG  
 GGAGAAGCTCTGGTCAAGCCAGAGGGAAATACAGAGNCCGAAAAGGGGAGGGCACGGT  
 GGCTGGACCAGACGCAGGGCCAGCAACTTCTCTCTACTGTCAGCCTGGTG  
 GTGCTGGAGCTCANAAAATTGGCACTGACACAGGACACCTTCCCACAGCCATTGGCCGG  
 CATTICATCTGCCAGGACACTGGCTCTCACCTGGCACTGGTCCCACAGAACCCGAGC  
 TGGGAAAGTTAATGTTCACCTGGGGCAGGAACCTCTTATCATGNGCAGAGAGCAG  
 AAGGTGGCACAGCCCAGCTGACCTCGGCCCCGACCACGGT

## 16466.1.edit

TCGAGCGCCGCCGGGAGCTCCACCATAGTCTGATACAACCACGGATGAGCTGICA  
 CGAGCAAGGTTGATTTCTTCAATTGGCTGGNCTCTCTTGGGGNCACCCGCACTCGAT  
 ATCCAGTGAGCTGAAACATTGGGTGGCTCACTGGGCTGAGGCT

## 16466.2.edit

TCGAGCGGTTGCCCGGGAGGTCCACCAACACCAATTCTTGCTGGTATCATGGCAGCCG  
 CCACGTGCCAGGATTACCGCTACATCATCAACTATGAGAACCTGGCTCTCTCCCAGAG  
 AACCGGCTCCCTGGCCCCGGCTGGTCAACAGAGGCTACTATTACTGGCTGGAACCCGG  
 AACCGAAATACAATTATGTCATTGNGCTGAAGAATAATCANAANAGGGANCCCTGA  
 TTGGAAAGGA

01\_16469.edit

02\_16469.edj:

TCGAGCGGNGCCCCGGCAGGTCTGCCAACACCAAGATTGGCCCCGCCATCCACACA  
GTCCCGTGTGGGGAGGTAAACAAAGAAAATACCGTGCCTGAGGTTGGACGTGGGAATTCTC  
TCTGGGGCTCAGAGTGTGTACTCGTAAAACAAAGGATCATCGATTTGCTACAAATOCAT  
CTAATAACGAGCTCGTTCGTACCAAGACCTGGTGAAGAATTGATCGTGTCTACGACAG  
CACACCGTACCGACAGTGGTACGAGTCCCACATGCGCTGCCCTGGCCGCAAGAAGGG  
AGCCAAGCTGACTCTGAGGAAGAGAGATTTAAACAAAAACGATCTAANAAAAAAA  
AAACAAAT

03\_16470.edit

ACCGTGGTCGCGCCGAGGTAAATGGTATTCTAGCTTCTGGCACTTCTGGTCAGCAACCC  
AGTGTGGGCACAAATGATCTTGGAAACATGGTTAGGCCGACACCCGGCCACA  
ACGGCCACCCCCATAAGGCATAGGCCAAGACCATACCCGGCGAATGTAGGACAAGAACCT  
CTCTCTCAGACAAACCATCTCATGGGCCATTCCAGGACACTTCTGAGTACATCATTCATG  
TCATCCTGGCAGTGTGAAGAACCTTACAGTTGGGTTCTGGAACTTCTACCGAT  
GCCACTCTGACAGGACCTGCCGGGCGCCGCTCGA

04 16470-edit

TCGAGGGGCCGCCCCGGCAGGTCTCTCAAGACTGGCACTGGTAGAAGTTCCAGGAACCT  
GAACTGTAAAGGTTTCTCATCAUTGCCAACAGGAATGACATGAAATGATGTACTCAGAAGT  
GTCTGGAAATGGGGCCCATGAGATGGTTGCTGAGAGAGAGCTCTTGTCCTACATTGGC  
GGGTATGGTCTGGCCTATGCCCTATGGGGGTGGGGCGGTGTGGTCCGGCTAA  
AACCATGTTCTCAAAAGATCATTTGTTGCCAACACTGGGGTGTGCTGACCAGAAGTGGCCAGG  
AAGCTGAATAACCATTTCACCTGGGGGGGAGGAGCT

OS 164-1 adit

TGGAGCCGCCCGGGCAGGTCTCCCTCTTCCGGCCCAGGGCAGCGCATAGTGGGAC  
TCGTACCACTGTCGTACGGTGTGCTGCGATGACCACGATGCAAATTCTCACCAAGGGCT  
TGGTACGAACCAGCTCGTTATTAGATGCAATTGTACACACATCGATGATCCTTGTITTAACG  
AGTACAAACACTGTGAGCCCCAGGAGAAAATCCCCACGTCCAACCTCAGGGCACGGTATTC  
TTGTTACCTCCCCCACACGGACTGTGTGGATGCAGGGGGGCAAGCTGACTCCTGAGGA  
AGAAGAGAATTAAACAAAAAAACGATCTAAAAAAATTAGAAGAAATATGATGAAAGGA  
AAAAGAATGCCAAATCAGCAGTCTCTGGAGGAGCAGTCCAGCAGGGCAAGCTTCTTG  
CTGGCATCGCTTCAGGGGGCACAGTGTGACCCAGCAGATGGCTATGTGCTAGAGGGCA  
AAGAAGTGGACTTCTATCTAAAGAAATAGGCCCCAGAATGGTGNGTCTCAACTAATC  
CAAAGGGGACTTCAGACCAACTGCAATTCAAGAAACATTGATACTGTNTGCCAAATTCA  
TTGGTGCAGGGCTTGCACANTANGANNGCTGGGTCTGGGGCTTGGATTGCGNACAAGCT  
TTGGCAGCCCTTTCTTGGTTTGCACACCTTGTGAAAGANGANACCTNGGGCGGA  
CCCCCTTAACCGATTCCACNCCNCGNGGGCTTCTANGGNCCNCTTG

FIG. 15EE

## 06\_16471.edit

AGCGTGGTCGCGGCCAGGTCTGCTGTTAGCGAAGGGTTCTGGCATAACCAATGATA  
 AGGCTGCCAAGACTGTTCCAATACCAAGCACCAGAACAGCCACTCTACTGGTGCAGCAC  
 CTGCACCAATAAAATTGGCAGCAGTATCAATGTCCTGCTGATTGACTGGTCTGAAACTC  
 CCTTTGGATTAGCTGAGACACACCATCTGGGCCCTGATTTCTTAAGATAGAAGTCAAAC  
 TCTTTGCCCTCTAGCACATAGCACTCTCTGGTCACACTGTCCCAGCCTGAAGCGATGC  
 ACGCAAGAAGCTGCCCTGCTGGACTGCTCTCCAGGAGACTGCTGATTTGGCATTCTT  
 TTTCTTCATCATATTTCTGAATTAGATGTTTTGTTAAATCTCTCTTCC  
 TCAGGAGTCAGCTTGGCCCCCGCCGATCCACACAGTCCTGTGCGGGGAGGTAACAAGA  
 AATACCGTGCCCTGAGGTTGGACGTGGGAATTCTCTGGGGCTCAGAGTGGTACTCG  
 TAAAACAAGGATCATCGATGGTNCTCAATGCATCTAATAACGAGCTGGGTGGACCCA  
 AAAAACCTGGNGAANAAAATGGATCGNCTCATCGACAGGACACCGTACCCGACAGGGNA  
 CGANTCCCACATATGCCTTGCCCTGGGCCGAANAAAAGGAAAATGCCCGGGCGGCNT  
 CGAAAGCCCCATTNTGGAAAAAAATCCATCACACTGGGNGGCCNGTCGAGCATGCATNTAN  
 AGGGGCCATTCCCCCTNANN

## 07\_16472.edit

TCGAGCGGCCGCCCCGGCAGGTCCCCAACCAAGGCTGCAACCTGGATGCCATCAAAGTCT  
 TCTGCAACATGGAGACTGGTGGACACTGGCTGTACCCCCACTCAGCCCAGTGTGGCCAGA  
 AGAAACTGGTACATCAGCAAGAACCCAAAGGACAAGAGGCATGTCTGGTTCGGCGAGAGCA  
 TGACCGATGGATTCCAGTTGAGTACCGGGCCAGGGCTCCGACCCCTCCGATGTGGACCT  
 CGGCCCGGACCAAGCCT

## 08\_16472.edit

AGCGTGGTCGCGGCCAGGTCCACATCGGACGGTCGGAGCCCTGGCCGCATACTCGAA  
 CTGGAATCCAATCGGTCACTGCTCTCCCCAACCAAGACATGCTCTGCTCTGGGTTCTGC  
 TGATGTACCAAGTCTCTGGCCACACTGGGCTGAGTGGGTACACGCAGGTCTCACCACT  
 CTCATGTTGCAAGAAGACTTTGATGCCATCCAGGTGCAGCCTTGTTGGGACCTGCCG  
 GGCGGCCGCTCGA

## 09\_16473.edit

TCGAGCGGCCGCCCCGGCACGGTCCACCAACCCAACTCCTGCTGGATCATGGCAGCCGC  
 CACCGGCCAGGATTACCGGCTACATCATCAAGTATGAGAAGCCTGGTCTCTCCAGAGA  
 AGTGGTCCCTCGGCCCCGGCTGGTCAACAGAGGCTACTATTACTGGCTGGAACCGGGA  
 ACGGAAATATACAAATTATGTCATGGCTGAGAAATACTAGAAAGAGGGAGCCCTGATTG  
 GAAGGAAAAGACAGACGAGCTTCCCAACTGTAACCTCCACACCCAAATCTTCATG  
 GACCAAGAGATCTGGATGTTCTTCCACAGTCAAAAGACCCCTTCTGTACCCACCCCTGG  
 GTATGACACTGGAATTGGTATCAGCTTCTGGCAGCTGTCAGCAACCCAGTGGGG  
 CAACAAATGATTTGAGGAACATGGNTTACGGGGGACCAACCGCCCACACGGCCACC  
 CCCATAAGGCATAGGCCAAGACCATACCCCGGAATGTAGGACAAGAAGCTNTNTCAN  
 ACACCATNTNATGGGCCCCATTCCAGGACACTTCTGAGTACATCATTTATGNCATCTGTGG  
 CACTTGATGAAACCCCTAACAGTTCAGGCTTCTGGAACTTTACCAAGGCTNTACAGGAC  
 TNGGCCGGACGCCCTAAGCCNATTACCCCTGGGGCGTTCTANGGTCCCACTCGNNACTG  
 GNGAATGGCTACTGTN

11\_16474.edit

AGCGTGGTCGCGGCCGAGGTCCACTAGAGGTCTGTGCCATTGCCAGGCAGAGTCTCTG  
 CGTTACAAACTCCTAGGAGGGCTGCTGTGCGGAGGGCTGCTATGGTGTGCTGCGGTCA  
 TCATGGAGAGTGGGGCAAAGGCTGCGAGGTTGGTGTCTGNGAAACTCCNAGGACANG  
 AGGGCTAAATTCCATGAAGTTGTGGATGCCCTGATGATCCACAATCGGAGACCTGTTAA  
 CTACTACCCTCTNACCNCCTGCTGTCNCCCCCNTTCTGCTNAANACATNGGNTNNTNC  
 TTGNCNTCTGGGTNGAANATDNAATNGCTNCCNTCTANCNTACTNGNTCCANA  
 NTGGCCTTAAANAATCCNCCTTGCCTNNCACTGTCANNTNTTCGTAACCCCT  
 ATNANTNNATTANATNNNNNNCTACCCCCCTCNCTCATNNANCNATANGCTNNNA  
 ANTCCCTNANNCCCTCCNCNNNTNCNTACTNANTNTCTNNCCATTACNNAGCT  
 CTTCNTTAAANATAATGNNGCCNGCTCTNCAATNTCTACNATNTGNNNAATNCNNCC  
 CCCNANCNNTTTGACCTNNAACCTCTTCTCCCTCNNAAAATNCNNANTTCC  
 NCNTCCNNNTTCGGNTNTCCATNCTTCCANNNCTCANTCTANCNCNTCAACT  
 TATTTCTNTCATCCCTNTCTTACANNCCTNNCTACTCNCNTTACATTANAT  
 TTGAAAACTNCCACNCTANTNCCTCTACNNTTTATTTNGNTCNCTACNTAAT  
 ANTTAAATNANTNTCN

12\_16474.edit

TCGAGCGGCCGCCCCGGCACGGCTGCCCACGGAGACCCCTGTTATGCTGTGGGACTGGCTG  
 GGGCATGGCACGGCGCTGCGCTTCCACCTCTGTTGAGATGGGGTGTGGCGAGT  
 ATCTCATCTTGGGTCACAAATGGTCACTGGTCAAGGAGGGCTTCTAGGGCAATCT  
 TACCAAGTTGGTCCCAGGGCAGGATGATCTTACCTTGATGCCAGGACACCCCTGCTGAG  
 CAACACGTGGCGCACAAACGACTGTAACGTTAGTAAGTTAACAGGGTCTCCGCTGTGGATC  
 ATCAGGCCATCCACAAACTTCACTGGAATTAGCCCTCTGTCCTCGGAGTTTCCCAGACACCA  
 CAACCTCGGAGCCTTCCCTCACTCTCACTGTAACCCGAGCACACCATACCAAGGGCCT  
 CCCACAAGCAAGCCCTCTAAGAATTGTAACCCANANACTCTCTGGCAATGGCACAC  
 AACCTCTAGTGGACCTCCGCCTGGACAC

13\_16475.edit

TCGAGCGCCCCGGGGCACGGCTGCGAGTCCTCTACTGCTACTC  
 CAGACTTGACATCATATGAATCATACTGGGAGAAATAGTTGAGGACCACTAGGGCATG  
 ATTCAACAGATTCCAGGGGGCCAGGAGAACCAAGGGGACCCCTGGTTGCTCTGGAAATACAG  
 GGTCACCATTTCTCCAGGAATACCAAGGAGGGCTGGATCTCCCTGGGCTTGAGGTCC  
 TTGACCATTAGGAGGGCAGTAGGACCACTTGGAGGCTGGGCAAATGCAACACATT  
 TCCAATGGAATTCTGGGTTGGGCAGCTCAATTCTTGATCCGTACATATTATGTCACTG  
 CAGAGAACGGATCTGAGTCACACACACATATTGGCATGGTCTGGCTTCCAGACATCTC  
 TATCCGNCACTGGACTGACCAAGATGGGAACATCTCTTCAACAAGCTTCTGTTGCC  
 AAAAAATAATGTTGGAATGAAGCAGACCGAGAAGTANCCAGCTCCCTTTGGCAGACAAAGC  
 NTCACTGCTAAATATCAGACATGAGACTTCTGGCAAAAAAGGAGAAAAAGAAAA  
 AGCAAGTTCAAAAGTANCCNCACTCAAGTGGTCTTGGCCNTTCAGCACCCGGCCCCGTT  
 ATAAAACACCTNGGGGGGACCCCCCTT

FIG. 15GG

## 14\_16475.edit

AGCGTGGTCGGGCCGAGGTGTTATGACGGGCCGGTGTGAAGGGCAGGGAAACA  
 TGATGGTCTACTTGAACTGCTTTCTCCCTTGTCAAAAGAGTCTCATGTCTGA  
 TATTTAGACATGATGAGCTTGTGCAAAAGGGGAGCTGGTACTCTCGCTCTGCTTCATC  
 CCACTATTATTTGGCACAAACAGGAAGCTGTGAAGGAGGATGTTCCCACCTGGTCAGTC  
 CTATGCGGATAGAGATGTCTGGAAGCCAGAACCATGCCAATAATGTTCTGTGACTCAGG  
 ATCCGTTCTCGCATGACATAATAATGTCAGGATCAAGAATTAGACTGCCCAACCCAGAA  
 ATTCCATTGGAGAATGTTGTGCACTTGGCCACAGCCTCCAAGTGCCTACTCGCCCTCC  
 TAATGGTCAAGGGACCTCAAGGCCCAAGGGAGATCCAGGGCCCTCTGGTATTCTGGAG  
 AAAATGGTACCCCTGGTATTCAGGACAACCCAGGTCCCCCTGGTTCTCTGGCCCGCTGG  
 ATCNGGNGAATCATGCCACTGGTCTCAAACATTCTCCANATGATTCAATATGATGTC  
 AAGTCTGGGATAGCNAGTANGGANGGACTCGCAGGCTATTCTGGACCANACCTGCCGGGG  
 GGGCGTTGAAAGCCCGAATCTGCANANNTNCNTCACACTGGCGGCGTCGAGCTGCTTT  
 AAAAGGGGCCATTCCNCTTAGNGNGGGGANTACAATTACTNGGCGGCTTANANCG  
 CGNGNCTGGGAAAT

## 15\_16476.edit

AGCGTGGTCGGGCCGAGGTCCACATCGGCAGGGTCGGAGCCCTGGCCGCCATACTCGAA  
 CTGGAATCCATCGCTCATGCTCTCGCCGAACCAAGACATGCCCTTGTCTTGGGTTCTTGC  
 TGATGTACCACTTCTCTGGGCCACACTGGCTGAGTGGGTACACGGCAGGTCTCACCAGT  
 CTCCATGTTGCAAGAAGACTTGTGGCACTCCAGGTTGCAGCCTGGTTGGGTCAATCCAG  
 TACTCTCCACTCTCCACTCAGACTGGCACATCTGAGGTCACGGCAGGTGGGGGGGT  
 TCTTGGCTGCCCTCTGGCTCCGGATGTTCTCGATCTGCTGGCTCAGGCTCTTGAGGCTG  
 GTGTCACCTCGAGGTCAACGGTCACGGCAACCCACATTGGCATCATCACCCCCGGTAGTACGGG  
 CACCATCGTCAAGCCTTCTCTTGAGCTGGCTGGCACAGGAACCTGAAACTCGAAACCAAGCGCT  
 GGGAGGACCAAGGGGGACCAANACCTCAAGGAACGGCCCGGGGGGACCAACAGGACAG  
 CATCACCAAGTGCAGCCCGGAGAACCTGCCGGCCGNCCTCGAA

## 16\_16476.edit

TCGAGCGNNCCCGGGCAGGTCTGGCCCTCGACCTGACCTCTGGTCCCTGGTCTCC  
 CCCGCCCTCTGACCTCTGGTCCCTGGTCTCCCTGGTCTCCAGCGCTGGTTCTGACTTCAGCTTC  
 CTGCCCCAGCCACCTCAAGAGAAAGGCTCACGATGGTGGCCCTACTACCGGGCTGAATGAT  
 GCCTAAATGTGGTCTCGTACCGGTGACCTCGAGGTGGACACCACCTCAAGAGCCTGAGCCAG  
 CAGATCGAGAACATCCGGAGCCCAGACGGGAGCCAAAGAACCCCCGGCCGACCTGCCGT  
 GACCTCAAGATGTGCCACTCTGACTGGAAAGAGTGGAGAGTACTGGATTGACCCCAACCAA  
 GGCTGCAACCTGGATGCCATCAAACTCTCTGCAACATGGAGACTGGTGGACACCTGGTGT  
 ACCCCACTCAGCCCAGTGTGGCCCAAGAAGAACTGTAACATCAGCAAGAACCCCCAAGGACA  
 AGAGGCAATGTCTGGTCTGGGGAAGGCAACCCGATGGATTCCAGTTCGAGTATGGCGGCC  
 AGGGCTCCCACCTGCCGATGTGGACCTCGGGGGGGACCAACCCCTT

## 17\_16477.edit

TNGAGCGGGCCGCCGGGCAGGNTGNAAACGCTGGTCTGCTGGTCTCTGGCAAGGCTG  
 GTGAAGAGATGGTCACCCCTGGAAAACCCGGACGACCTGGTGAGAGAGGAGTTGGGACAC  
 AGGGTGCTGTGGTTCCCTGGAACTCCTGACTTCCTGGCTTCAAAGGCATTAGGGGACA  
 CAATGGTCTGGATGGATTGAAGGGACAGCCCGGTGCTCTGGTGTAAGGGTGAACTGG  
 TGCCCCCTGGAAAATGGAACCTCCAGGTCAAACAGGAGCCCGTGGGCTTCTGGTGAAG  
 AGGACCGTGTGGTGCCTGGCCANACCTCGGCCGACCACGCTAACGCCGAATTCC  
 AGCACACTGGNGGGCCCTACTANTGGATCCGAGCTCGGTACCAAGCTTGGCTAATCATG  
 GTCATAGCTGTTCTGNGTGAATTGTTATCCGCTACAATTACACACANCATACGAAGC  
 CGGAAAGCATAAAGTGTAAAGCCTGGGTGCTAATGAGTGAGCTAACCNCAATTAAATT  
 GCGTTGGCTCACTGCCCCCTTTCCANNNGGAAACNTGGNTNGCCNGTTCGNTTAA  
 NTGAAATCCGCCNACCCCCGGGAAAAGNCGGTTGNGTATTGGGGCNCCTTTCCCTT  
 CCTCGGNTTACTTGANTTANTGGCTTGGNCNTGGGTGNGGGGANCGNGTCAACN  
 TCACNCCAAGGNGGNAANACGGTTTCCCANAATCCGGGGNTANCCAANGNAAAC  
 ATNNNGNCNAANGGCT

## 18\_16477.edit

ACCGTGGTNGCGGCCAGGTCTGGCCAGGGGGACCAACACGTCTCTCACCAAGGAA  
 GCCCACGGGCTCTGTTGACCTGGAGTCCATTCACTGGGACCCAGGTTAACCTT  
 CACACCAGGAGCACCGGGCTGCTCCATTCATNCAGACCATGTCGNCCTTAATGCCT  
 TTGAAGCCAGGAAGTCCACGGACTTCAGGAAACCCACGGAGCACCTGTGGTCAAC  
 TCCCTCTCAACCAGGTGTCGGGTTCAGGATCTTCACCAAGCCTTGGCAGGA  
 GGACCAAGGAGCACCGTACCAACCTGCCGGCGGCCGCTCGA

## 21\_16479.edit

TCGAGCGGGCCGCCGGCAGGTCCAATTCTCCCTGACGGTCCCACCTCTCTCAATCTTGT  
 AGTCACACCAATTGTCATGCCACCATCTAGATGAATCACATCTGAAATGACCACTTCCAAA  
 GCCTAACCAACTGGCACACACACTTAAACCTGATTCAAGACATCGTCCCACTCATCTCCA  
 ACGGCATAATGGGAACACTGTGAGGGCTAAAGCACGACTCATCGTAGGTTGGTCAAG  
 CCTTCGTTGACAGAGTTGCCACGCTAACCAACTCTCCGAACCTTATGCCCTGCTGGTC  
 TTCACTGCTCCACTATGATGTTGAGGTGCCACCTCTGGTAGGACCTCGGGCGGAC  
 ACGCT

## 22\_16479.edit

ACCGTGGTGGCCGGGGAGGTCTCTACCCACAGGTGCCACCTAACACATCATAGTGAGGCA  
 CTGAAAGACCAACAGAGGCATAAAGGTGGGAAGAGGTTGGTACCGTGGCAACTCTGTC  
 AACCGAAGGCTTGAAACCAACCTACGGATGACTCTGTTGACCCCTACACAGTTCCATT  
 ATGCCGTTGGAGATGAGTGGGACGAAATGTCGAAATCAGGCTTAAACTGTTGTGCCAGTG  
 CTTAGGCTTGGAAAGTGGCTCAATTCAAGATGTAATTCACTAGATGGTCCATGACAATGG  
 TGTGAACCTACAAGATTGGAGAGAAGTGGGACCGTCAGGGACAAAATGGACCTGCCGGG  
 CGGGCCGCTCGA

24\_16480.edit

TCGAGCCGGCCGGCCAGGTCCAGTAGTGCCTTGGGACTGGTTCACCCCCAGGTCTG  
CGGCAGTTGTCAACAGGCCAGCCCCGCTGGCTCAAAGCATGTGCAGGAGCAAATGGCA  
CCGAGATATTCTCTGCCACTGTTCTCTAACGTGGTATGTCTCCATCATGTAACACGT  
TGCTCATGAGGGTCAACTTGAATTCTCTTTTCCCTTCCCAGACATGTGCAGCTCATTT  
GGCTGGCTATAGTTGGGAAGTTGTGAAACTGTGCCACTGACCTTACTCTCTCT  
TCTTACTGGAGCTTCTGACCTTCCACTTCTGCTGGTAAAATGGTGGATCTCTATCA  
ATTCTATGACAGTACCCACTTCTCCCACACATCCAGGGAAATAGTGTATTAGAGCGATT  
AGGAGAACCAAATTATGGGGCAGAAAATAAGGGGCTTCCACAGGTTTCTTGGAGGA  
AGATTTCAGTGGTGACTIONAAAAGAATACTCAACAGTGTCTCATCCCCATAGCAAAAGAA  
GAAACNGTAAATGATGGAANGCTCTGGAGATGCNNCATTAAGGGACNCCCAGAACTT  
CACCATCTACAGGACCTACTTCAGTTACANNAAGNCACATANTCTGACTCANAAAGGAC  
CCAAGTAGCNCCATGGNCAGCACTTNAGCCTTCCCTGGGAAANNTTACNTTCTTAA  
ANCCTNGCCNNAGCCCCCTTAAAGNCCAAATTNTGGAAAANTTCCNTNCNNCTGGGGGCG  
NGTTCNACATGCNTTNAAGGGCCCATTNCCCCNT

25\_16481.edit

TCGAGCCGCCGCCCCGGCAGCTGTGGAGTCCAGCACGGGAGGGGTGGTCTTGATGGT  
TCTCCGGCTGCCCAATTGCTCTCCACTCCACGGCGATGTCGCTGGATAGAACCTTTGAC  
CAGGCAGGTCAGGCTGACCTGGTCCTGGCATCTCCTCCGGATGGGGCAGGGTGTAC  
ACCTGTGGTTCTCGGGGCTGCCCTGGCTTGGGATGGAGATGGTTTCTCGATGGGGGCTGGG  
GGGCTTGTGGAGACCTTGCACTTGACTCTGCCATTCAAGCCAGTCCTGGTGCAGGAC  
GGTGAGGAGGCTGACCACACGGTAGCTGGTGTACTCTCTCCGGCGGCTTGTCTTG  
GCATTATGCACCTCCACGCCCTCACGTAACAGTTGAACTTGACCTCAAGGTCTTCTGGC  
TCACGTCACCAACCACCGCATGTAACCTCACGACCTCGGGCGCAGGACCGCT

25 16491.edit

AGCGTGGTCGCCCGAGGTCTACGTTACATGCCGTGGTGCGACGTGACCCACGAAGA  
CCCTGAGGTCAAGTCAACTCTACCTGAGGGCTGGAGGTGCATAATGCCAAGACAAA  
GCCCGGGGAGGACAGTACAACAGCACCTACCGTGTGGTACCGTCCTCACCGTCCTGCA  
CCAGGACTGGCTGAATGCCAAGGACTACAAGTCCAAGTCTCAAACAAACCCCTCCCAAGC  
CCCCATCGAGAAAACCATCTCCTAACCCAAAGGGCAAGCCCCGAGAACCCACAGGTGTACA  
CCCTGCCCTCATCCCGGGAGGACAATGCCAAGAACCCAGGTCAAGCTGACCTGCCGTGCA  
AAGGCTTCTATCCCAGCGACATGCCGTGGAGTGGAGAGGCAATGCCAGGCCGGAGAACAA  
ACTACAAGACCACGCCCTCCCGTGTCTGACATGCCACACTGCCCGGGCGGCCCTGCA

- 16-8-.edit

TCGAGCCGCCGCCCCGGCAGGTGAATGGCTCTCGCTGACCACCCCGGTGCTGGTGGTGG  
GTACAGAGCTCCGATGGGTCAAAACCATGGACATAGAGACTGTCCCTGTCCAGGGTGTAGG  
GGCCCAGCTCAGTGATCCCCGGTCAGCTGGCTCACCTCCAGTACAGCCGCTCTCTGTC  
CAGTCCAGGGCTTTGGGCTCAGGACCATGGGTCCAGACAGCATCCACTCTGGTGGCTGC  
CCCATCTCTCAGGCCCTGACCAAGGTCACTCTGCAACCAGAGTACAGAGAGCTGACACT  
GGTGTCTTGAACAGGGCATAACCGAGACCCCTGAAGGACACCTCGGGCCGACCAACGCT

FIG. 15JJ

29\_16482.edit

AGCGTGGTCGGCCGAGGTCTTCAAGGTCTGTTATGCCCTGTTAAGAACACCAAG  
 TGTCAAGCTCTCTGTACTCTGGTGCAGACTGACCTTGCTCAGGCCTGAGAAGGAATGGGGCA  
 GCCACCAAGAGTGGATGCTGTGCACCCATCGTCTGACCCAAAAGCCCTGGACTGGACA  
 GAGAGCGGCTGACTGGAAGCTGAGCCAGCTGACCCACGGCATCACTGAGCTGGCCCT  
 ACACCCCTGGACAGGGACAGTCTATGTCATGGTTACCCATGGAGCTGTACCCAC  
 CACCAGCACCGGGGTGGTCAGCGAGGAGCCATTCAACCTGCCCGGGCGCTCGA

29\_16483.edit

AGCGTGGTCGGCCGAGGTCTGTCAGAGTGGCACTGGTAGAAGTCCAGGAACCTGA  
 ACTGTAAGGGTTCTTCATCAGTGCACAGGATGACATGAAATGATGTACTCAGAAGTGTG  
 CTGGAATGGGGCCCATGAGATGGTTGCTGAGAGAGAGCTTGTCTACATTGGCGGG  
 TATGGTCTTGGCTATGCCCTATGGGGGTGECCGTTGTCGGCGGTGTTGCTCGCTAAAAC  
 CATGTTCTCAAAGATCATTTGTCGCAACACTGGGTTGCTGACCAGAAGTGCAGGAAG  
 CTGAATACCATTTCCAGTGTCACTCCACGGGTGGGTGACGAAAGGGGTCTTTGAACTGTG  
 GAAGGAACATCCAAGATCTCTGGCACTGAAGATGGGGTGTGAAGGGTACCACTGG  
 GGAAGCTCGTGTCTTCTTCCCTCACTGAGGGCTCGCTTCTGATTATTCTTCAGGGC  
 AATGACATAATTGTATACTCGGTCGGGTTCCAGGCCAGTAAATAGTAGCCTCTGTGACAC  
 CAGGGCGGGGCCGAGGGACCCCTCTNTGGAAGAGACCAGCTCTCATACTTGATGATGA  
 GNCCGGTAATCTGGACCTGGNGCTTGCATGATNCCACCAAGGAATNGNGGGGGNG  
 GACCTGCCCCGGCGGCCGTTCAAAAGCCAAATTCCACACACTGGNGCCGTACTATGGATC  
 CCACCNGTCCAACCTGGNGGAATGGCATAACTTTT

31\_16484.edit

TCGAGCGGCCGCCCCGGGAGGTCTTCAACCAAGTGGAAAGGTGTAATCCGTCT  
 CCACACACAAAGGGCAGGACTCTTGTACCCCTGATGATGAAATGGGGTACTGATGCCAA  
 CAGTTGGTAGCCAATCTGCAGACAGACACTGCCAACATTGGGACACCCCTCCAGGAAGC  
 GAGAAATGCAAGAGTTCTCTGTGATATCAACCAACTTCAGGGTTGATGATGCTGCCATTGTC  
 GAACACCTGCTGGATGACGAGCCAAAGGAGAAGGGGAGATGTTGAGCATGTTAGCAG  
 CGTGGCTTGGCTGGCTCCACATTCTCCAGTCAAGACCTCGGGCGACCAACGCT

37\_16487.edit

AGCGTGGTCGGCCGCCCCGGAGGTCTGCTTACAGTCTCAGGACTCTACTCCCTCAGCAGCGTG  
 GTGACCGTGCCCTCCAGCAACTTGGCACCCAGACCTACACTGCAACGTAGATCACACGC  
 CCACCAACACCAAGGTGGACAAGAGACTGAGCCAAAATCTTGACAAAACACACAT  
 GCCCACCGTGCCAGCACCTGAACCTCTGGGGGACCGTCAGTCTCTTCCCCCGCAT  
 CCCCTTCCAACCTGCCCCGGCGCCCTCG

*FIG. 15KK*

38\_16487.edit

CGAGCGGCCGCCGGGAGGTGGAAAGGGGATGCAGGGAAAGAGGAAGACTGACGGT  
 CCCCCCAGGA~~G~~TTCAGGTGCTGGCAGGGATGTGAGTTTGTCACAAGATTGG  
 GCTCAACTCTTGTCCACCTGGTGGCTGGCTGTGATCTACGTTGCAGGGTAGGTC  
 TGGGTGCCGAAGTTGCTGGAGGGCACGGTCACCACGGCTGCTGAGGGAGTAGAGTCCTGAG  
 GACTGTAGGACAGACCTGGCCGACCACGCT

39\_16488.edit

NGGNNGGTCCGGNCNGNCAGGACCACTCTTCGAAATA

41\_16489.edit

AGCGTGGTCGCGGCCGAGGTCTCAGTGCCTCTGCAAAGCACCGATAGCTGCCTCTGG  
 AAGCGCAGATCTGTTTAAAGTCCTGAGCAATTCTGCACCAAGACGCTGGAAGGGAAAGTT  
 TCGGAATCAGAAGTTCAGTGGACTCTGATAACGTCTAATTACGGAGCGCCAGTACCA  
 AGGACCTGCCCGGGCGGCCCTCGA

42\_16489.edit

TCGAGCGCCGCCGGGAGGTCTCGTACTGNGGGCTCCGTGAAATTAGACGTTATCA  
 GAAGTCCACTGAACTTCTGATTGGCAAACTTCCCTTCCAGCGCTCTGGTGGAGAAATTGCT  
 CAGGACTTTAAAACAGAATCTGGCTTCCAGAGCGCAGCTATCGGTGCTTGCAGGAGGCA  
 AGTCAGGACCTGCCCGGGCGACCACGCT

45\_16491.edit

TCGAGCGCCGCCGGGAGGTCCACATGGCAGGGCTGGAGCCCTGGCCCATACTCG  
 AACTGGAATCCATCGGTCACTCTCTGGCAACCAAGACATGCTCTTGTCTTGGGTTCT  
 TGCTGATGTACCAAGTTCTGGCCACACTGGGCTGAGTGGGTACACGGCAGGTCTCACC  
 AGTCTCCATGTTGCAGAAGACTTTGATGGCATCCAGGTTGCAGGCTTGGTTGGGTCAATC  
 CAGTACTCTCCACTCTTCAAGTCAGAGTGGCACATCTTGAGGTACGGCAGGTGCCGGCG  
 GGTTCTTGACCTGCCCGGGACCACGCT

*FIG. 15LL*

46\_16491.edit

GTGGGNTTGAACCCNTTNANCTCCGCTTGGTACCGAGCTCGGATCCACTAGTAACGGCCG  
 CGAGTGCTGCTGGATTCCGCTTAGCGTGGTCGGCCGAGGTCAAGAACCCCCGCCGCAC  
 CTGCGTGAACCTCAAGATGTGCCACTCTGACTGGAAGAGTGGAGACTGGAATTGACCC  
 CAACCAGGCTGAACCTGGATGCCATCAAGTCTTGTCAACATGGAGACTGGTGGAC  
 CTGCGTGTACCCCACTCAGCCCAGTGTGGCCAGAAGAACTGGTACATCAGCAAGAACCC  
 CAAGGACAAGAGGCATGTCTGGTTCGGCGAGAGCATGACCGATGGATTCCAGTTGAGTA  
 TGGCGGCCAGGGCTCCGACCCCTGCCATGTGACCTGCCCGGGCGGGCGCTCGA

47\_16492.edit

AGCGTGGTCGGGCCGAGGTCTGGGATGCTCTGCTGTACAGTGAGATAATTACAGGATC  
 ACTTACGGAGAAACAGGAGGAATTAGCCCTGTCCAGGAGTTACTGTGCTGGAGCAAG  
 TCTACAGCTACCATCAGGGCCCTAAACCTGGAGTTGATTATACCATCACTGTGATGCTG  
 TCACTGGCGTGGAGACAGGCCGAGCAGGAAGCCAATTCCATTAAATTACCGAACAG  
 AAATTGACAAACCATCCCAGATGCAAGTGAACCGATGTTCAAGGACAACAGCATTAGTGTCA  
 AGTGGCTCCCTCAAGTCCCCCTGTTACTGGTTACAGAGTAACCAACACTCCCCAAAAATGG  
 ACCAGGACCAACAAAAACTAATTAGTCAGGTCCAGATCAAACAGAAAATGACTATTGAAG  
 GCTTGAGGCCACAGTGGAGTATGGGTTAAGTGTCTATGCTCAGAATCCAAGCAGGAG  
 AAGTCAGCCTGGTTCAAGCTGNAAGTAACCAACATTGATGCCCTAAGGACTGGCATT  
 ACTGATGNGGATGCCGATCCATCAAATTGNTGGAAAACCCACAGGGGCAAGTTNC  
 ANGTCAGCAGGGACCTACTGGAGCCCTGAGGAATGCTTACTNTCCNNCTGAT  
 GGGGAAAAAAACCTTNAAAACTGAAAGGACCTCCCCGGCGCGTNCAAAACCAATT  
 CCACCCCTTGGGGCGTTCTATGGCNCCACTCGGACCAAACTGGGTAA

48\_16492.edit

TCGAGCCGCCGCCGGGGAGGTCTTGCAGCTCTCCAGTGTCTTCAACCATCAGGTGCA  
 GGGAAATACCTCATGGATTCCATCTCATGGCTCGACTAGGTGACCTGTACCTGGAAACCT  
 GCCCTGTGGCTTCCCAGGAAATTGATGGAATCGGCATCCACATCAGTGAATGCCAG  
 TCTTAAAGGCGATCAATGGTGTACTGCAGTCTGAACCAAGAGGCTGACTCTCTCCGCTT  
 GGATTCTGAGCATAGACACTAACCAACATACTCCACTGTGGGCTGCAAGCTTCAATAGTCA  
 TTCTGTTGATCTGGACCTGCAGTTAGTTTGTGGTCTGGTCAATTGGAGTG  
 GTGGTTACTCTGTAACCAAGTAAACAGGGGAACCTGAAGGCAGGCACTTGACACTAATGCTGT  
 TGTCTGAAACATGGTCACTGGATCTGGGATGGTTGTCAATTCTGTTGGTAATTAAATG  
 GAAATTGGCTTGTGCTCTGGGGCTTGTCTCCACGGCCAGTGAACAGCATACACAGTGATG  
 GTATAATCAACTCCAGGTTAAGCCCGTGAAGTAGCTGAAACCTTGTCCAGGCACAAAGT  
 GAACCTGTGACAGGGCTATTCTCTGTTCTCCGTAAGTGATCTGTAAATATCTCACTGGG  
 ACAGCAGGANGCACTCCAAAACCTGGCCGNGACCCCTAACCCGAATTNTGCAATATNC  
 ATCAACTGGCGGGCGCTCGANCATTCAATTAAAGGGCCAAATNCCTATAGGGACTNT  
 ANTACAATTNG

*FIG. 15.VM*

## 49\_16493.edit

TCGAGCGGCCGCCCCGGCAGGTCACTTTGGTTGGTCATGTCGGTGGTCAAAGATA  
 AAAACTAAGTTGAGAGATGAATGCAAAGGAAAAAAATATTTCAAAGTCATGTGAAA  
 TTGTCTCCCACTTTGGCTTTGAGGGGGTCAGTTGGGTTGCTGTCTGTTCCGGGTT  
 GGGGGGAAAGTTGGTGGGTGGGAGGGAGCCAGGTTGGATGGAGGGAGTTACAGGAA  
 GCAGACAGGGCCAACGTCG

## 55\_16496.edit

ACCGTGGTCGCCGGCCGAGGTCTCACCAAGAGGTGCCACCTACAACATCATAGTGGAGGCA  
 CTGAAAGACCAGCAGAGGCATAAGGTCGGGAAGAGGTTTACCGTGGGCAACTCTGTC  
 AACGAAGGCTTGAACCAACCTACGGATGACTCGTGTCTGACCCCTACACAGTTCCATT  
 ATGCCGTTGGAGATGAGTGGAACGAATGTCTGAATCAGGTTAAACTGTTGCCAGTG  
 CTTAGGTTTGAAGTGGTCATTCAGATGTGATTCACTAGATGGTGCCATGACAATGGT  
 GTGAACCTACAAGATTGGAGAGAAGTGGGACCGTCAGGGAGAAAATGGACCTGCCCGGGC  
 GCCCGCTCGA

## 56\_16496.edit

TCGAGCGGCCGCCCCGGCAGGTCCAATTCTCCCTGACGGTCCCACCTCTCTCCAATCTTGT  
 AGTTCACACCATTGTCACTGGCACCATCTAGATGAATCACATCTGAAATGACCACCTCCAAA  
 GCCTAACGCACGGCACAAACAGTTAAACCCCTGATTCAAGACATTGTTCCCACTCATCTCCA  
 ACGGCATAATGGAAACTGTGTAGGGGTCAAACUCACCGAGTCATCGTAGGTTGCTTCAG  
 CCTTCTGACAGAGTGCCACCGTAACAACCTCTCCCAACCTTATGCCCTCTGCTGCTGTC  
 TTGAGTGCCTCCACTATGATGTTGAGCTGGCACCTCTGGTAGGGACCTCGGGCCCGACC  
 ACGCT

## 59\_16498.edit

TCGAGCGGCCGCCCCGGCAGGTCCACCAAACTCTGATACAACCAACGGATGAGCTGTCA  
 GGAGCAAGGTGATTTCTTCATGGTCGGTCTTCTCCTGGGGGTCAACCGCACTCGATA  
 TCCAGTGGCTGAACATTGGCTGGTCCACTGGGGGCTCAGGCTTGTGGGTGTGACCTGA  
 GTGAACCTCAGGTCAAGTTGGTCAGGAATAGTGGTTACTCGACTCTGAACCAAGGGCTGA  
 CTCTCTCGCTTGGATTCTGAGCATAGACACTAACCCACATACTCCACTGTGGGCTGCAAGC  
 CTTCATAAGTCATTTCTGTTGAATCTGGACCTGCAGTTTACTTTTGTGGTCTGGTCCAT  
 TTTGGGAGTGGTGGTTACTCTGTAACCAAGTAACAGGGGAATCTGAAGGCAGCCACTTGAC  
 ACTAACTCTGTTGTCTGAACATCGCTCACTTGCATCTGGGATGGTTGNCAATTCTGTT  
 GGTAAATTAAATGGAAATTGGCTTGCTGCTGGGGGCTGCTCACGGCCAGTGACAGGCATA  
 CACAGNGATGCNATNATCAACTCCAACTTAAAGGCCCTGATGGTAACCTTAAACTTGCTCC  
 CAGCCAGNGAATCTCCGGACACGGTAATTCTCTGGTTTCCGAAAGNGANCTGGAATNN  
 TCTCCTTGGANCAGAACGGANCNTCAAACCTTGCCCCGGAACCCCTT

## 60\_16473.edit

ACCGTGGTCGCGGCCGAGGTCTGTCAGAGTGGCACTGGTAGAAGTTCCAGGAACCTGA  
 ACTGTAAGGGTCTTCATCAGTGCAACAGGATGACATGAAATGATGACTCAGAAGTGTGTC  
 CTGGAATGGGGCCCCTATGAGATGGTTGCTGAGAGAGAGCTTCTGCTCTACATTGGCGGG  
 TATGGCTTGGCTATGCCTTATGGGGCTGCCCTTGTGGCGGTGTGGTCCGCCAAAAC  
 CATGTTCTCAAAGATCATTGCCCCAACACTGGGTCGACCAGAAGTGCCAGGAAG  
 CTGAATACCATTTCCAGTGTCAACCCAGGGTGGGTGACCAAAGGGCTTTGAACGTG  
 GAAGGAACATCCAAGATCTCTGGCCATGAAGATTGGGGTGTGAAAGGGTACCAAGTGG  
 GGAAGCTCGTCTGCTTTCCCTCCAATCAGGGCTCGCTCTGATTATTCAGGGC  
 AATGACATAAATTGTATAATTGGTCCAGGCCAGATAATAGTAGCCTCTGTGAC  
 ACCAGGGGGGCCANGGACCACTCTCTGGGAGAGACCCAGCTCTCATACTTGATGAT  
 GTAAACCCGGTAATCCTGACGTGGCGCTGNCAATGATACCAAGGAATTGGGTGNGN  
 GGACCTGCCGGCGGCCCTCVA

## 60\_16498.edit

ACCGTGGTCGCGGCCGAGGTCTGGATGCTCTGCTGTCACAGTGAGATATTACAGGATC  
 ACTTACGGAGAAACAGGAGGAATAGCCCTGTCAGGAGTTACTGTGCTGGAGCAAG  
 TCTACAGCTACCATCAGCGGCCCTAACCTGGAGTTGATTACCATCAGTGATGCTG  
 TCACTGGCGTGGAGACAGCCCCGCAAGCAGCAAGCCAATTCCATTAAATTACCGAACAG  
 AAATTGACAACCATCCCAGATGCAAGTGACCGATGTTCAAGGACAACAGCATTAGTGTCA  
 AGTGGCTGCCCTCAAGTCCCCCTGTTACTGGTTACAGACTAACCACTCCCCAAAATGG  
 ACCAGGACCAACAAAATCAAAACTGCAAGGTCAAGATCAACAGAAATGACTATTGAAG  
 GCTTGCAGCCCAGTGGAGTAGTGGTTAGTGTCTATGCTCAGAAATCCAACCGGAGAGA  
 GTCAGCCTCTGTTCAAGACTGCACTAACCACTTCTGCACCAACTGACCTGAAGTTCAC  
 TCAGGTCAACACCCACAAACCTGACCCGGCACTGUAACACCACCCAAATGTTCACTCACTGGAT  
 ATCGAAGTGCAGGGTGAACCCCCAAGGAGAAGACCCGGACCCATGAAAGAAATCAACCTTGCT  
 CCTGACACCTCATCCGGGTGATCAAGGACTTATGGGGACTGCCCCGGCNCCGNT  
 GAAANCGAATTNTGAAATTCCCTCNACTGGNGGCNTTCGAGCTNTNTANANGGC  
 CCAATTCCCTNAGGGCTGDN

## 61\_16499.edit

ACCGTGGTCGCGGCCGAGCTCNAGGA

## 62\_16483.edit

TCGAGCGGCCGCGCCGGCCAGGTCCACACACCCAAATTCTTGTGOTATCATGGCACCCGC  
 CACGTGCCAGGATTACCGGCTACATCATCAAGTATGAGAAGCCTGGTCTCTCCCAGAGA  
 AGTGGTCCCTCGGCCCCGCCCTGGTGTACAGAGGCTACTATTACTGGCTGGAAACCGGA  
 ACCGAATATAACAAATTATGCTCATGGCTGAAAGAATAATCAGAAGAGCGAGCCCCCTGATTG  
 GAAGGAAAAAGACACACGAGCTTCCCAACTGGTAACCCCTTCACACCCCCAAATCTTCATG  
 GACCAAGAGATCTGGATGTTCTTCCACAGTTCAAAAGACCCCTTCTGTCAACCCACCCCTGG  
 GTATGACACTGAAATGGTATTCAGCTCTGGCACTTCTGGTCAACCAACCCAGTGTGGGG  
 CAACAAATGATCTTGAGGAACATGGTTTAGGGGGACCACACCGCCCCACACCGGGCACC  
 CCCATAAGGNAAGGCCAAGACCAACCCCGCCGAATGTAGGACAAGAAGCTCTCTCA  
 ACAACCATCTCATGGGGCCCCATTUCAGGACACTCTGAGTACATCATTCTCATGTCATCTG  
 GTGGCCACTTGATGAANAACCCCTACAGTTCAAGGTTCTGGAACTTCTACCAAGNGCCACT  
 TCTGACAGGANCTGGCCNGACCACCT

## 63\_16500.edit

AGCGTGGTCGGCCGAGGTCCATTCTCCCTGACGGTCCCACCTCTCTCAAATCTTAG  
 TTCACACCATGGCATGGCACCATCTAGATGAATCACATCTGAAATGACCACTCCAAAGC  
 CTAAGCACTGGACAACAGTTAAAGCCTGATTAGACATTCGTTCCCACTCATCTCCAAAC  
 GGCATAATGGGAAACTGTGTAGGGTCAAGCAGAGTCATCCGTAGGTGGTCAAGCC  
 TTCTGTTGACAGAGTTGCCACGGTAACAACTCTCCGAACCTTATGCCCTGCTGGTCTT  
 TCAGTGCCCTCACTATGATGTTGTAGGTGGCACCTCTGGTAGGGACTGCCCGGGCGGCCCC  
 GCTCGA

## 64\_16493.edit

AGCGTGGTCGGCCGAGGTGTGCCAGACAGGAATCGGCTTCACGTTGCCCTGTC  
 TGCTTCTGTAACCTCCCTCCATCCAACCTGGCTCCCTCCACCCACCAACTTCCCCC  
 AACCCGGAACAGACAAGCAACCCAACTGAACCCCCCTAAAAGCCAAAAAAATGGGAG  
 ACAATTTCACATGGACTTTGAAATAATTTTTCTTGCATTCACTCTCAAACCTTAGTT  
 TTATCTTGACCAACCGAACATGACCACCAACAAAGTGACCTGCCCGGGCGGCGCTC  
 GA

## 64\_16500.edit

TCCAGCGGGCGCCCGGGCAGCTCTTACCAAGAGGTGCCACCTACAACATCATAGTGAGG  
 CACTGAAAGACCAAGCAGAGGCATAACGTTCGGAAAGAGGTTGTTACCGTGGCAACTCTG  
 TCAACGAAGGCTTGAACCAACCTACGGATGACTCGTGTCTTGACCCCTACACAGTTCCA  
 TTATGCCGTGGAGATGAGTGGAAACGAATGTTGAATCAGGCTTAAACTGTTGTGCCAG  
 TGCTTACGGCTTGGAAAGTGGTCAATTCAAGATGTAATTCACTAGATGGTCCATGACAATG  
 GTGTGAACCTAACAGATTGGAGAGAACGTGGACCGTCAGGGAGAAAATGGACCTCGGCCG  
 CGACCAACGCT

## 16501.edit

TCGAGCGGCCGCCCCGGCAGGTACCGGGTGGTCAGCGAGGAGCCATTACACTGAACCT  
 CACCATCAAC&ACCTGCCTATGAGGAGAACATGCAGCACCCCTGGCTCCAGGAAGTCAA  
 CACCACGGAGAGGGTCTTCAGGCCTGCTCAGGTCCTGTTCAAGAGACCCAGTGTTGGC  
 CCTCTGTACTCTGGCTGAGACTGACTTGCTCAGACCTGAGAAACATGGGGCAGCCACTG  
 GAGTGGACGCCATCTGCACCCCTCCGCTTGATCCCACTGGTCTGGACTGGACANANAGCG  
 GCTATACTTGGAGCTGANCCNAACCTTGGCGGNGACVCCNCTT

## 16501.2.edit

GAGGACTGGCTCAGCTCCCAGTATAGCCGCTCTGTCCAGTCCAGGACCAGTGGGATCAA  
 GGCGGAGGGTGCAGATGGCGTCCACTCCAGTGGCTGCCCATGTTCTCAAGTCTGAGCAA  
 AGNCAGTCTGCAGCCAGAGTACAGAGGGCAACACTGGTCTCTTGAACAGGGACCTGAG  
 CAGGCCCTGAAGGACCCCTCCGTGGTGTGAACCTCCCTGGAGCCAGGGTGTGCATGTC  
 TCCTCATACCGCAGGTTGTGATGGTGAAGTCACTGTGAATGGCTCTCGCTGACCACCC

## 16502.1.edit

AGCGTGGTCGGGGCGAGGTCCACCAACACCCAAATTCTTGTGGTATCATGGCAGCCGCCA  
 CGTCCCAGGATTACCGGCTACATCATCAACTATGAGAAGCTGGTCTCCCTCCAGAGAA  
 GTGGCTCCCTCGGCCCCGCCCTGGTGTACAGAGGCTACTATTACTGGCTGGAACCGGGAA  
 CGGAATATAACAATTATGTCAATTGCTTAAGAATAATCAGAAGAGCGAGCCCCCTGATTGG  
 AAGGAAAAAGACACACGGAGCTCCCAACTGGTAACCCCTCAACACCCCAATCTTCATGG  
 ACCAVANANCTGGATNGTCCATTCAACGGTTAAAAAAACCTTTGGCCCCCCCCACCTTG  
 GGGATTAACCTGGAAAGGGCAATTACCTTCC

## 16502.2.edit

TCGAGCGGCCGCCCCGGCAGGTCTGTCAAGAGTGGCACTGGTAGAAGTCCAGGAACCT  
 GAACTGTAAGGGTCTTCACTCACTGCCAACAGGATGACATGAAATGATGTACTCAGAAGT  
 GTCTGGAAATGGGCCCCATGAGATGGTGTCTGAGAGAGAGCTTCTTGTCTACATTCCGC  
 GGGTATGGTCTGGCCTATGCCCTATGGGGGTGGCGGTGTGGCGGTGTGGTCCGCTAA  
 AACCAATGTTCTCAAAGATCAATTGTTGCCAACACTGGGTCTGACCAGAAGTCCAGG  
 AAGCTGAATACCAATTCCAGTGTCAACCCAGGGNGGGTACCAAAAGGGGTCTTINCA  
 CCTGGNGAAAGGAACCATCCAAAANCTGNCCTCATG

16503.1.edit

ACCGTGGNCGGCCGAGGTCTGAGGAATGAAACTCTCCAGGGGAAGGCTGAAGTGCT  
 GACCATGGTCTACTGGTCCTCTGAGTCAGATATGTGACTGATGNGAAGTAGTAGGT  
 ACTGTAGATGGTGAAGTCTGGGTCTCCCTAAATGCTGCATCTCCAGAGCCTTCATCATT  
 CCGTTCTCTCTGGCTATGGGATGAGACACTGTTGAGTATTCCTAAAGTCACCACTGAAA  
 TCTTCCTCAAAGGAAACCTGGGAAAGCCCCCTTATTCCTGCCCATATAAGGGTCTCC  
 TAATCNCTCTGAAATCACTATTCCTGGAANGTTGGAAAAANNGGCNACCTGNCAN  
 TGGAAANTGGATANAAGATCCCACCTTACCCAACNAGCAGAAAAGTGGGAANGGTAC  
 CGAAAAGCTCCAAGTAANAAAAGGAGGGAAAGTAAAGTCAGTGGCACCAAGTTCAA  
 ACAAAACTTCCCCAAACTATANAACCA

16503.2.edit

AAGCGGCCGCCGGGCAGNNCAGNAGTGECTCGGGACTGGGNTACCCCCAGGTCTGC  
 GGCAAGTTGTACAGGCCAGCCCCCTGGCCTCCAAAGCATGTGCAGGAGCAAATGGCAC  
 CGAGATATTCTCTGCACTGTTCTCTACGTTGATGTCTCCATCATCGTAACACGTT  
 GCCTCATGAGGGTCACTTGAATTCTCTTCTCGTCCCAAGACATGTGCAGGTCATTG  
 GCTGGCTCTATAGTTGGGAAAGTTGTTGAAACTGTGCCACTGACCTTACTTCCTCTT  
 CTCTACTGGAGCTTCCGTACCTTCACTTCTGCTGNTGGAAAAAGGGNGGAACNTCTTA  
 TCAATTTCATGGACAGTANCCCNCTTCTNCCAAAACATNCAAGGGAAAATATTGATTN  
 CNAGAGCGGATTAAGGAAACAACCCNAATTATGGGGCCAGAAATAAAAGGGGGCTTTCCA  
 CACGTNTTTCT

16504.1.edit

TCGACCGGCCGCCGGGCAGGTCTGCAGGCTATTGTAAGTGTCTGAGCACATATGAGAT  
 AACCTGGGCCAACGCTATGATGTTGCACTGTTAGGTGATTAATGCACTTTGACTGCCA  
 TCTCAGTGGATGACACCCCTCTCACTGACACCCAGAGATCTCTCACTGTGCCAGTGGCA  
 GGAGAAAGAGCATGCTGCCACTGGACCTCGCCGGACCACGCT

16504.2.edit

ACCGTGGTGGCCGGCCGAGGTCCAGTCCCAGCATGCTTTCTCTGCCACTGGCACAGTG  
 AGGAAGATCTCTGCTGTCAGTGAGAAGGCTGTCATCCACTGAGAGTGGCACTCAAAGTGC  
 ATTTAAATACACCTAACGTAACGAAACATCAAGCTTGGCCCAGGTTATCTCATATGTGCTCA  
 GAACACTTACAAATAGCCTCCAGACCTGCCGGGGGGCGCTCGA

FIG. 15RR

## 16505.1.edit

CGAGCGGCCGCCCCGGCAGGTCCAGACTCCAATCCAGAGAACCAAGCCAGATGTCAG  
 AAGCTACACCATCACAGGTTACAACCAGGCACTGACTACAAGATCTACCTGTACACCTTG  
 AATGACAATGCTCGGAGCTCCCTGTGGTCACTGCCATTGATGCACCAT  
 CCAACCTGCGTTCTGGCCACCACACCCAAATTCTTGCTGGTATCATGGCAGCCGCCACG  
 TGCCAGGATTACCGGCTACATCATCAAGTATGAGAAGCTGGTCTCTCCCAGAGAAGT  
 GGTCCCTCGGCCCCGGCTGGTGNCACAGAAAGCTACTATTACTGGCTGGAACCGGGAAAC  
 GAATATAACAATTATGTCATTGCCCTGAAGAATAATCANAAGAGCGAGCCCTGATTGGA  
 AGG

## 16505.2.edit

AGCGTGGTCGGGCCAGGTCTGTCAAGAGTGGCACTGGTAGAAGTCCAGGAACCCCTGA  
 ACTGTAAGGGTTCTTCATCAGTGCACAGGATGACATGAAATGATGTAACAGAAGTGT  
 CTGGAATGGGGCCCATGAGATGGTGTCTGAGAGAGAGCTCTGTCTGTCTTTCTTC  
 CAATCAGGGGCTCGCTCTCTGATTATTCTCAGGGCAATGACATAAATTGATATTGGTT  
 CCCGGTTCCAGGCCAGTAATAGTACCCCTGTGACACCAAGGGGGGGGGGAGGGACACT  
 TCTCTGGGAGGAGACCCAGGCTCTCATCTTGATGATGTANCCGGTAATCTGGCACCGT  
 GGCGGCTGCCATGATACCAAGGAATTGGGTGGTGGCCAAGAAACCGCAGGGTGGAT  
 GGTGCATCAATGCCAGTGGAGGCCTGATNACCACAGGGAGCTCCGANCATTGTCATTC  
 AAGGTGGACAGGTAGAAATCTTGTATCAGGTGCCCTGGTTTGTAACCTG

## 16506.1.edit

TCGAGCGGCCGCCCCGGCAGGTTCTGTACCGTGACCTCGAGGTGGACACCACCCCTCAAG  
 AGCCTGAGCCAGCAGATCGAGAACATCCGAGCCAGACGGGAGCCGAAGAACCCGC  
 CGCACCTGCGGTGACCTCAAGATGTCGCACTCTGACTGGAAAGAGTGGAGAGTACTGGAT  
 TGACCCCACCAACGGCTGCAACCTGGATGCCATCAAAAGTCTCTGCAACATGGACAGACTGGT  
 GAGACCTGCGGTGACCCCACTCAGGCCAGTGTGGCCAGAAGAAACTGGTACATCAGCAAG  
 AACCCCAAGGACAAGAACATGTCGGTTCGGCAAGACATGACCGATGGATTCCAGITC  
 GAGTATGGCGGGCAAGGGCTCCGACCTGGGATGTGGACCTGGCCGCGACCACGGTAAG  
 CCCGAATTCCAGCACACTGGGGCTTACTACTGGGATCCGAGCTTGGTACCAAGCTTG  
 GCGTAATCATGGCNATACTGTTCTGTTGAAATGTAATTCCGTTGACAATTCCC  
 AC

## 16506.2.edit

AGCGTGGTCGGGCCAGGTCCACATGGCAAGGTGGACCCCTGGCCGCCATACTCGAA  
 CTGGAATCCAATGGTCATGCTCTGGCGAACAGACATGGCTCTGTCTTGGGGTTCTTGC  
 TGATGTAACCAAGTCTCTGGCCACACTGGCTGAGTGGGGTACACCGCAGGTCTCACCAAGT  
 CTCCATGTTGCAGAACACTTGAATGGCATCCAGGTGGCAGGCTTGGTGGGTCAATCCAG  
 TACTCTCCACTCTTCACTGAGACTGGCACATCTGAGGTCAAGGGAGGTGGGGGGGT  
 TCTTGGGCTGCCCTCTGGCTCCGGATGTTCTCGATCTGCTGGCTCAAGCTTGAAGGGT  
 GGTGTCCACCTCGAGGTCAACGAAACCTGCCCGGGCGCCGCTCGA

16507.1.edit

AGCGTGGTCGCCGCCGAGGTCAAGAACCCGCCACCTGCGTGACCTCAAGATGTGC  
CACTCTGACTGGAAAGAGTGGAGAGTACTGGATTGACCCCCAACCAGGCTGCAACCTGGAT  
GCCATCAAAGTCTTCTGCAACATGGAGACTGGTGAGACCTGCGTGACCCCACTCAGCCCCA  
GTGTGGCCCAGAAGAACTGGTACATCAGCAAGAACCCCAAGGACAAGAGGGCATGTCGGT  
TCGGCGAGAGCATGACCGATGGATTCCAGTTCGAGTATGGCGGCCAGGGCTCCGACCTGG  
CCGATGTGGACCTGCCCGNGCCGNCCGTCGAAAAGCCCAATTTCAGNCACACTTGG  
CCGGCCGTTACTACTG

16507.2edit

TCGAGCGGCCGGCCGGCAGGTCCACATCGGCAGGGTCGGAGCCCTGGCCGCCATACTCG  
AACTGGAATCCATCGGTATGCTCTGCCGAACCGACATGCCCTTGTCTTGGGGTTCT  
TGCTGATGTACCAGTTCTCTGGGCCACACTGGGCTGAGTGGGTACACGCAGGTCTCAC  
AGTCTCATGTTGAGAAGACTTGTGATGGCATCCACGGTTGCAAGCTTGGTGGGTCAATC  
CACTACTCTCCACTCTTCCAGTCAGAGTGGCACATCTTGAGGTACCGCAGGTGCGGGCGG  
GGTTCTTGACCTCGGCCGCGACCGCT

16508, 1. edit

**CGAGGGGCCGCCCCGGGCAAGGTCCCCCCCCCTTTTTT**

16508-2.edip

ACCGTGTGCGCCCGAGGUTCTGCCATTCTCTCCAGCCGAGCTTCCCACAA  
CATCACATACTGCACAAAATAGCATTGGATACATGGATCAGGCCAGTGGAAATGTA  
GAAGGCCCTGAAGCTGATGGGTCAAATGAAGGTAAATTCAAGGCTGAAGGAAATAGCA  
AATTACCTACACAGTTCTCCACCGATGGTTCACGAAACACACTGGGAATGGAGCAAAA  
CACTTTGAATATCCAACACGCCAGGCTGTGAGACTACCTATTGTAGATATTGCACCTA  
TGACATTGGTGGTCTGATCAAGAAATTGGTGTGGCACGTTGGCCCTGTTCTTTATAAA  
CCAACCTATCTGAAATCCCACACAAAAAATTAACTCCATATGTGNTCTCTTGTCT  
AACTTGGCAACCAGTGCAGTGACCGACAAAAATTCCAGTTATTATTCACAAATGTTTG  
GAAACAGTATAATTGACAAAGAAAAAGGATACTTCTCTTTGGCTGGTCCACCAAA  
TACAATTCACAAAGCCTTTGGTTTATTTTANCCAATTCAAAATGTCCTAA  
TGGNGCTTAATAAAATACCTTACCCCTTTTNTGAT

FIG. 1577

## 16509.1.edit

AGCGTGGTCGCGGCCGAGGTCTGGATGCTCTGCTGTACAGTGAGATATTACAGGATC  
 ACTTACGGAGAAACAGGAGGAATAAGCCCTGTCCAGGAGTTCACTGTGCCTGGGAGCAAG  
 TCTACAGCTACCATCAGCGGCCCTAACCTGGAGTTGATTACCATCACTGTGTATGCTG  
 TCACTGGCGTGGAGACAGCCCCGCAAGCAGCAAGCCATTCCATTAAATTACCGAACAG  
 AAATTGACAAACCATCCCAGATGCAAGTGACCGATGTTAGGACAACAGCATTAGTGTCA  
 AGTGGCTGCTTCAGTCCAGGAGTTACAGAAGTAACCACCACTCCAAAAATG  
 GACCAGGACAACAAAACACTAAACTGCAGGTCCAGATCAAACAGAAAAATGGACTATTG  
 AAGGCTTGAGCCCACAGTGGAAAGTATGTGGNTAGGNGTCTATGCTCAGAACTCCAGGCC  
 GGAGAAAAGTCAGCCTCTGGTTAGACTGCAGTAACCAACATTGATGCCCTAAAGGACT  
 GGNCATTCACTTGGATGGTGGATGTCCAATT

## 16509.2.edit

TCGAGCGGCCGCCCGGGCAGGTCTTGCAGCTCTGCAGNGTCTTCTCACCATCAGGTGCA  
 GGGAAATAGCTCATGGATTCATCCTCAGGGCTCGAGTAGGTACCCCTGTACCTGGAAACCTT  
 GCCCCTGTGGCTTCCAAAGCAATTGGATGGAATCGACATCCACATCAGNGAATGCCAG  
 TCCATTAGGGCGATCAAATGGTACTCGACTCTGAACCAAGAGGCTGACTCTCTCCGCTT  
 GGATTCTGAGCATAGACACTAACCAACATCTCACTGTGGCTGCAAGCCTCAATAGTCA  
 TTCTGTTGATCTGGACCTCCAGTTAACGTTGGTGGCTCTGNCCATTGGAAAG  
 TGGGGGGTTACTCTGAACCAAAACAGGGAAACTTGAAGGCAGCCACTTGACACTAATG  
 CTGGTGCCTGAAACATCGGTACTTGCATCTGGGATGGTTGACAATTCTGTTGGCA  
 AATTAAATGGAATTGGCTTGCTCTGGGGCTGNTCCACGGGCCAGTGACAGCATA  
 C

## 16510.1.edit

TCGAGCGGCCGCCGGGGCAGGTCTTGCAGCTCTGCAGTGCTTCTCACCATCAGGTCCA  
 GGGAAATAGCTCATGGATTCATCCTCAGGGCTCGAGTAGGTACCCCTGTACCTGGAAACCTT  
 GCCCCTGTGGCTTCCAAAGCAATTGGATGGAATCGACATCCACATCAGTGAAATGCCAG  
 TCCATTAGGGCGATCAAATGGTACTCGACTCTGAACCAAGAGGCTGACTCTCTCCGCTT  
 GGATTCTGAGCATAGACACTAACCAACATCTCACTGTGGCTGCAAGCCTCAATAGTCA  
 TTCTGTTGATCTGGACCTCCAGTTAACGTTGGTGGCTCTGNCCATTGGAAAG  
 GGGGTGGTTACTCTGAACCAAAACAGGGAAACTTGAAGGCAGCCACTTGACACTAATG  
 CTGGTGGCCTGAAACATCGGTACTTGCATCTGGGATGGTTGGTCAATTCTGTTGGTAAT  
 TAATGGAAATTGGCTTACTGGCTTGGGGCTGCTCCACGGONCAGTGACAAAGCATA  
 ACAGGNGATGGTATAACTCCAGGTTAACGGCCNCTGATGGTA

## 16510.2.edit

AGCGTGGTCGCGGCCGAGGTCTGGATGCTCTGCTGTACAGTGAGATATTACAGGATC  
 ACTTACGGAGAAACAGGAGGAATAAGCCCTGTCCAGGAGTTCACTGTGCCTGGGAGCAAG  
 TCTACAGCTACCATCAGCGGCCCTAACCTGGAGTTGATTACCATCACTGTGTATGCTG  
 TCACTGGCGTGGAGACAGCCCCGCAAGCAGTAAGCCATTCCATTAAATTACCGAACAG  
 AAATTGACAAACCATCCCAGATGCAAGTGACCGATGTTAGGACAACAGCATTAGTGTCA  
 AGTGGCTGCTTCAGTCCAGGAGTTACAGAGTAACCAACCACTCCAAAAATGG  
 GACCAGGACAACAAAACACTAAACTGCAGGTCCAGATCAAACAGAAATGACTATTG  
 AAGGCTTGAGCCCACAGTGGAGTATGTGGTTAGTGTCTATGCTCAGAAATGCCAGGG  
 AGAGACTCAGCCCTGGTTAGACT

*FIG. 15UU*

## 16511.1.edit

TCGAGGGGCCGGCGGGCAGGTCAAGCGCTCTCAGGACGTACCACCATGGCCTGGCTCT  
 GCTCCCTCTCACCCCTCTCACTCAGGGCACAGGGCTCTGGGCCAGTCTGCCCTGACTCAG  
 CCTCCCTCCCGCTCCGGCTCTGGACAGTCAGTCACCATCTCTGCACCTGGAAACCAGCA  
 GTGACGTTGGTGCTTATGAATTGTTCTCTGGTACCAACAACACCCAGGCAAGGCCCCAA  
 ACTCATGATTCTGAGGTCACTAACGGCCCTCAGGGTCTCTGGCTCCANGCTGAGGTGANGCTGATT  
 AAGTCTGGCAACACGGCCTCCCTGACCGTCTCTGGCTCCANGCTGAGGTGANGCTGATT  
 ATTACTGGAACCTCATATGCAGGCAACACAAATTGGGTGTTGGCGGAAGGGACCAAGCT  
 GACCGTNCTAAGGTCAAGCCAAGGCTTGCCCCCTCGGTACTCTGTCCCACCCCTCT  
 GAAGAAGTTCAAGCCAACAANGNCACACTGGGTGTCATAAGTGGACTTTCTACCC

## 16511.2.edit

AGCGTGGTCGCGGGCGAGGTCTGTAGCTCTGTGGGACTTCCACTGCTCAGGGCTCAGGCT  
 CAGGTAGCTGCTGGCGCTACTTGTGTTGCTTGTGAGGGTGTGGTGGTCTCCACT  
 CCCGCTTGAAGGGGCTGCTATCTGCCCTCCAGGCCACTGTCACGGCTCCGGTAGAAGT  
 CACTTATGACACACACCAAGTGTGGCTTGTGGCTGAAGCTCTCAGAGGGAGGGTGGGA  
 ACAGAGTACCGAGGGGCCAGCCTGGGCTGACCTAGGACGGTCAGCTGGTCCCTCCCG  
 CGAACACCCAAATTGTTGCTCCATATGAGCTGAGTAATAATGAGCTCATCCTCAGC  
 CTGGAGCCCAGAGACNGTCAGGGAGGGCTGTTGGCAAGGACTTGGAAAGCCAGANAAG  
 CGATCAGGGACCCCTGAGGGCCCTTACGACTCAAAAAATCATGAAATTGGGGGCC  
 TTGCTGGNGTGGTTGGTACCGAAACACAAATTGCTATAAAAGCACCAACCGTCACT  
 GCTGGTTCCAGTCANAAATGCTGAACGTGAANTGTCC

## 16512.1.edit

AGCGTGGTCGCGGGCGAGGTCCAGCACTAGGACCCCGCTTGGCGCTCTGGTATGCC  
 TTTCTTTGTGGCTGAAACCGATGTCACTCAATTCCGACTAGCAGAACTGCCGCTCCTCACTG  
 CTGTCTTATAAGTCTGCAGCTCACAGCCAAATGGCTCCCATATGCCCACTTCTCATGTCC  
 ACCAAAGTACCCGCTCTCACCAATTACACCCAGGTCTCACAGTTCTCTGGGTGTGCTTGG  
 CCCGAAGGGAGGCTAAGTANACGGATGGTCTGGTCCCACAGTTCTGGATCAGGGTACGAG  
 GAATGACCTCTAGGGCCCTGGCNACAAACCGCTATGGACCTCCCCGGGGGGCCGCTC  
 GA

## 16512.2.edit

TCGAEGGGCCCCGGGGCAGGTCCATACAGGGCTGTTGCCAGGCCAGAGGNCACTCC  
 TTGTACCCCTGATCCAGAACTGTGGCACCCACCCACCATCCGCTACTTACCTCCCTTGGGCC  
 AACGACACCCAGGAGAACTGTGAGACCTGGGTGAAATGGNGAGACGGGTACTTGGTG  
 GACATGAAGGAACGGCCATATGGGAGCCATTGGCTGNGAAGCTGCANACTATAAGACA  
 GCAGTGGAGAGGGCAGTTCTCTACTGCJAATTGATGACATCGTTCAAGGCCACAAAAAG  
 AAAGGGGATGACCAANACCCGGCAAGGGGGGCTTCTGATGCTGGACCTCGGGCGCCAC  
 CACGCTT

## 16S14.1.edit

AGCGTGGTCGGCCGAGGTCCACTAGAGGTCTGTGCCATTGCCAGGCAGAGTCTCTG  
 CGTTACAAAGTCTAGGAGGGCTTGCTGTGCCAGGGCCTGCTATGGTGTGCTGCCGTTCA  
 TCATGGAGAGTGGGGCCAAGGCTGCGAGGTTGTGGTGTCTGGAAACTCCGAGGACAGA  
 GGGCTAAATCCATGAAGTTGTGGATGGCTGATGATCCACAGCGAGACCCCTGTTAACTA  
 CTACGTTGACACTGCTGTGCCACCGTGTGCTCANACAGGGTGTGCTGGGATCAAGGTG  
 AAGATCATGCTGCCCTGGGACCCANCTGGCAAAAATGGCCCTTAAAAAACCCCTGCCNTG  
 ACCACGTGAACCATTGTGNGAACCCCAGATGAANATACTTGCCACCAACCCCCCATTC

## 16S14.2.edit

TCGAGCGGCCGCCCCGGCAGGTCTGCCAAGGAGACCCGTTATGCTGTGGGGACTGGCTG  
 GGGCATGGCAGGCGCTCTGGCTTCCCACCCCTCTGTTCTGAGATGGGGTGTGGGCACT  
 ATCTCATCTTGGGTTCCACAATGTCACGTGGTCAGGCAGGGCTTCTTAGGGCCAATCT  
 TACCAAGTTGGGTCCCAGGGCAGCATGATCTCACCTGATGCCACAGCAGCCCTGCTGAG  
 CAACACGTGGCGCACAGCAGTGTCAACGTAGTAGTTAACAGGGTCTCCGCTGTGGATCAT  
 CAGGCCATCCACAAACTCATGGATTAGCCCTCTGTCTCGGAGTTTCCCACACACAC  
 AACCTCGCCAGCCTTGGGCCACCTCTCATGAATGAAACCGCAGCACACCAATTANCAA  
 GGGCTTCCGACAGGAAAGCCCTCTAAGGAGTTTGTAAACGCAAAAAACTCTTGCT  
 GGGCAATGGGACACAGACCTNTANTGGACCTTGGGNCCCGAACCACCGCTT

## 16S15.1.edit

ACCGTGGTCGGCCGAGGTCTGCCCTCTGCGAACGCTGTAAGATGGTCACCCCTGG  
 AAAACCCGGACGACCTGTGAGAGAGGACTTGTGACCACAGGGTGTCTGTGGTTTCCC  
 TGGAACTCCCTGGACTTCTGGCTTCAAGGGCATAGGGGACACAATGGTCTGGATGGATTG  
 AAGGGACAGCCCGGTGCTCTGGCTGAAGGGTGAACCTGGNGCCCTGGTGAAAATGGA  
 ACTCCAGGTCAAACAGCAGCCCGTCTGGCTGGAGAGGGACGTGGTGGTGGCCCT  
 GCCCCANACCTGCCGGGGCGCTCAAAAGCCGAATCCAGNACACTGGCGCCCGNT  
 ACTANTGGAAATCCGAACCTCCGCTACCAAGCTTGGCGTAATCATGGCCATAGCTTGTCC  
 CTGGGGNGGAAATTGGTATTCCGCTCCAATTCCACACACATACCGAACCCGGAAAGCA  
 TTAAAGTGTAAAAGCCCTGGGGGGCTAAATGAGCTGAGCTAACTCNCATTTAATTGG  
 CGTTGCGCTTCACTGCCCGCTTTTCAAGTCCGGGNA

## 16S15.2.edit

TCGACCGGGCGCCGGGAGGTCTGGCCAGGGCACCAACACGTCTCTCTCACCAAGGA  
 AGCCCACGGGCTCTGTTTCACTGGAGTTCCATTTCACCAAGGGCACCAAGGTCAACCT  
 TCACACCAAGGAGCACGGGCTGTCCCTCAATCCATCCAGACCAATTGTGNCCTTAATGCC  
 TTGAAGCCAGGAAGTCCAGGACTTCAAGGGAAACCACGAGCACCCGTGGTCCAACAC  
 TCCTCTCTCACCAAGGTGGTGGGGTTTCAAGGGTGGACATCTCACCAAGCCTGCCAGGA  
 GGGCCAGACCTGCCGGCACCAAGCT

16516.1.edit

ANCGTGGTCGGCCGAGGTCTCACCAAGAGTGNCACCTACAAACATCATAGTGGAGGCA  
CTGAAAGACEANCAGAGGCATAAGGTTGGGAAGAGG

16516.2.edit

TCGAGCGGCCGCCCCGGCAGGTCCATTTCCTCCGTACGGTCCCACCTTCCTCCAATCTTGT  
AGTTCACACCATTGTCAAGGCACCATCTAGATGAATCACATCTGAAATGACCACITCCAAA  
GCCTAAGCACTGGCACAAACAGTTAAAGCCTGATTCAGACATTCTCCCACTCATCTCCA  
ACGGCATAATGGGAAACTGTGTAGGGGTCAAAGCACGAGTCATCCGTAGGTTGGTCAAG  
CCTCGTGTGACAGAGTTGTCCACGTAACAAACCTCTCCGAACCTTATGCCCTTGCTGGTC  
TTCACTGCTCCACTATGATGTTGTAGGTGGCACCTCTGGTGAAGGACCTCNGNCCNGAAC  
AACGCTTAAGCCGNATTCTGCAGAATAATCCCACACACTTGGCGGGCTCGANCATG  
CATCNTAAAAGGGGCCCCAATTCCCTTATAAGNGAANCCGTATTNCCAATTCACTG  
GNCCCGCCGNTTTACAAACGNCGTGAACTGGGAAAAACCTGGCGTTACCCACTT  
TAATCGCCNTGGCAGCACAAATCCCCCTTTCGNCCANCNTGGCGTAAATAACGAAAAA

16517.1.edit

ANCGNGCTCGGGCCGANGTNTTTCTTNTTTT

16518.1.edit

AGCGTGGTCGGCCGAGGTCTGAGGTTACATCGTGGTGGACGTGAGCCACGAAGA  
CCCTGAGGTCAAGTCAACTGGTACGTGGACGGCGTGGAGGTGATAATGCCAAGACAAA  
GCCCGGGAGGAGGAGCACTACAAACACCAACGTAACGGGGNGGTCAAGGTCTCACCGTCTGCA  
CCAGAATTGTTGAATGGCAAGGAGTACAAGNGCAAGGTTCCAACAAAGCCNTCCAGC  
CCCCNTGAAACCACTTCCAAAGCCAAAGGGCAGCCCCGAGAACACAGGTGTACAC  
CCTGGCCCCATCCCCGGAGGAAACANCAANAACCNNGGTTCAAGCTTAACCTGCTGGTC  
NAANGCTTTTATCCCACGNACTCCCCNTGGAANTGGGAAAAACCAATGGGCCAANC  
CGAAACCAATTACAANAACCC

16518.2.edit

TCGAGCGGCCGCCCCGGCAGGTCTGAGCTCCACCAAGGGAGGGCTGGTCTTGTAGTTGT  
TCTCCGGCTCCCCATTGCTCTCCACCTCCACGGCGATGTCCCTGGATAGAAGCCTTGAC  
CAGGCAGGTCAAGGCTGACCTGGTCTGGTCACTCTCCCTGGGATGGGGGGAGGGGTGAA  
CACCTGGGGTTCTCGGGGCTTGGCCATTGGTTGAANATGGTTTCTCGATGGGGGCTGG  
AAGGCTTTGGTGNAAACCTCCACTTGAACCTGGCCATTCAACCCAGNCTGGNCCAGGA  
CGGNGAGGACNCTNACCACACGGAACCGGGCTGGACTGCTCC

*FIG. 15XX*

16519.1.edit

ACCGTGGTCGGGACGGANGCTCTGTCAAGAGTGGNACTGGTAGAAGTTCCANGAACCCCTGA  
 ACTGTAAGGGTTCTTCATCAGTGCCAACAGGATGACATGAAATGATGACTCAGAAGNGN  
 CCTGGATGGGCCCATGANATGGTGCC

16519.2.edit

TCGAGCGGCCGCCCCGGGAGGTCCACCACACCAATTCTGCTGGTATCATGGCAGCCGC  
 CACGTGCCAGGATTACCGCTACATCATCAAGTATGAGAAAGCTGGGTCTCTCCAGAGA  
 AGTGGTCCCTCGGCCCCGCCCTGGTGTACAGAGGGTACTATTACTGGCTGGAACCGGGGA  
 ACCGAATATAACAATTATGTCAATTGCCCTGAAGAATAATCAGAAGAGCGAGGCCCTGATTG  
 GAAGGAAAAAGACAGACGAGCTCCCCAACTGTAACCCCTCCACACCCCAATCTTCATG  
 GACCAGAGATTTGGATGTTCTTCACAGTTCAAAGACCCCTTCGGCACCCCCCTGG  
 GTATGAACTGGAAAANGGNANTTAANCCTTCTGGCA

16520.1.edit

ACCGTGGTCGGCCGAGGTCTGGGATGCTCTGCTGTACAGTGAGATATTACAGGATC  
 ACTTACGGAGAAACAGGAGGAAATAGCCCTGTCACGGAGTTACTGTGCCCTGGGAGCAAG  
 TCTACAGCTACCATCAGGCCCTTAAACCTCGAGTTGATTATACCATCAGTGTAATGCTG  
 TCACTGGCCCTGGAGACAGGCCCTGCAAGCAGCAAGCCATTCCATTAAATTACCGAACAG  
 AAATTGACAAACCAATCCCAGATGCAACTGACCGATGTTCAAGGACACAGCATTAGTGTCA  
 AGTGGCTGCCCTCAAGGTNCCTGGTACTGGTTACAGANTAACCAACCTCCAAAAATG  
 GACCAGGAACCAACAAAAACTTAAACCTGCAAGGTTCAAGATGCAAAACAGAAAATGACTATTGA  
 ANGCTTGAGCCCACACTGGGAGTATGCGGTAGTCNCTATGCTTCAGAATCCAAGCGGA  
 AAAANGTCAAGCCTNTGGGTTCAA

16520.2.edit

TCGAGCGGCCGCCCCGGGAGGTCTTCAGCTGCACTGTCTTCTTCAACCACAGGTGCA  
 GGGAAATAGCTCATGGATTCCATCCTCACGGCTCGAGTAGGTACCCCTGTACCTGGAAACTT  
 GCCCCCTGTGGCTTCCCAAGCAATTTCATGGAATCGACATCCACATCAGTAATGCCAG  
 TCCTTACGGCCGATCAATGTTGGTTACTGCAGNCTGAAACCAAGGGCTGACTCTCTCCGCTT  
 GGATTCTGAGCATAGACACTAACACATACCTCACTGTGGGCTGCAANCCTCAATAANN  
 ATTTCTGTITGATCTGGACC

16521.1.edit

TCGAGCGGCCGCCCCGGGAGGTCTGGTGGGCTCTGGCACACGGCACATGGGGNGTTGNT  
 CTNATCCAGCTGCCAACGCCCCCAATTGGCAACTTTGAGAAGGTGTGCAGCAATGACAACAA  
 NACCTTCAACTCTCCTGCCACTTCTTGCACAAAGTGCACCCCTGGAGGGCACCAAGAAG  
 GCCCACAAAGCTCCACCTGGACTACATCGGGCTTGCAAATACATCCCCCTTGCTGGACT  
 CTGAGCTGACCGAATTCCCCCTTGCGCAATGCGGACTGGCTCAAGAACCGTCTGGCACCC  
 TTGTATGAAACGGATGAACACACNACCC

*FIG. 15YY*

## 16522.1.edit

AGCGTGGTCGGCCGAGGTCTGCCTACAGTCCTCAGGACTCTACTCCCTCAGCAGCGTG  
 GTGACCGTGGCCTCCAGCACTTCGGCACCCAGACCTACACCTGAACGTAGATCACAAGC  
 CCAGCAACACCAAGGTGGACAAGAGAGTTGAGCCCCAAATCTTGACAAAACACACAT  
 GCCCACCGTGGCCAGCACCTGAACCTCTGGGGGACCGTCAGTCTCTCTTCCCCGGCAT  
 CCCCCCTCCAAACCTGGCCGGGGCGCTGAAAGCCGAATTCCAGCACACTGGCGGCCG  
 GTACTAGTGGANCCNAACTTGGNANCCAACCTGGNGGAANTAAATGGGATAANCTGTTTC  
 TGGGGGAAATTGGTATCCNGTTACAACTCCNCACACATACGAGCCGAAGCATAAAA  
 AGNGTAAAAGCCTGGGGNGGCCTANTGAAGTGAAGCTAAACTCACATTAATINGCGTTG  
 CGCTCACTGGCCGCTTTCCAGC

## 16522.2.edit

TCGAGCGGCCGCCCCGGCAGGTTTGAAGGGGGATGCGGGGGAGAGAGGAAGACTGACGG  
 TCCCCCCCAGGAGTTCAAGGTGCTGGCACCGTGGCATGTGTGAGTTTGTACAGATTTG  
 GGTCAACTCTTGTCCACCTTGGTGTGCTGGCTTGTGATCTACGTTGCAGGGTAGGT  
 CTGGGNGCCGAAGTTGCTGGAGGGCACGGTACCCACGCTGCTGAGGGAGTAGAGTCTGA  
 GGACTGTANGACAGACCTGGCEGNACACACGCTAACCGGAATTCTGCAGATATCCATCA  
 CACTGGCGCCGCTCCGAGCATGCACTTAAAGAGG

## 16523.1.edit

AGCGTGGNCGGGACGANCACAACAAACCC

## 16523.2.edit

TCGACCGCCGCCCCGGCAGGNCCACATGGCAGGGTCGGAGCCCTGGCCGCCATACTCG  
 AACTGGAATCCATCGTCATGCTCTTGGGAACACAGACATGCTCTTGTCTGGGTTCTT  
 GCTGATGNACCAGTCTTCTGGCCACACTGGGCTGAGTGGGTACACGCAGGTCTCACCA  
 GTCTCCATGTTGAGAAGACTTTGATGGCATCCAGGTGCAAGCCTGGTGGGTCATCC  
 AGTACTCTCCACTCTTCCAGTCAGAGTGGCACATTTGACGTCACGGCAGGTGCGGGGG  
 GTTCTTGACCT

## 16524.1.edit

AGCGTGGTCGGCCCCGAGGTCCAGCSTGGAGATAAGGTGAAGGTGGTCCCCCGGACTT  
 CCAGGTATAGCTGGACCTCTGGTACCCCTGGAGAGAGAGGTGAAACTCCGCCCCCTCCAGGA  
 CCTGCTGGTTTCCCTGGTCTCTGGACAGAAATGGTAACCTGGNGGTAAAGGAGAAAGA  
 GGGGCTCCGGNTGAAAGAGGTGAAGGGAGCCCTCTGNNATGGCAGGGGCCCAAGACTT  
 AGAGGTGGAGCTGGCCCCCTGGCCCCCAAGGAGGAAGGGTGTGCTGTCCTCTGGG  
 CCACCTGG

16S24.2.edit

TCGAGCGGCCGCCCCGGCAGGTCTGGCCAGGAGGACCAATAGGACCAGTAGGACCCCTT  
 GGGCCATTTCCCTGGGACACCATCAGCACCTGGACCGCCTGGTACCCCTTGACCCCTT  
 TGGACCAGGAATTCCAAGACCTCTCTTCTCCAGGCATTCTGCAGACCAGGAGTACCA  
 NCAGCACCAGGTGGCCAGGAGGACCAAGCAGCACCCTTCTCTCCGGGACCAAGGGGA  
 CCAGCTCCACCTCTAAGCTCTGGGGCCCTGCAATCCAGGAGGGCTCTCACCTTCTC  
 ACCCGGAGCCCCTCTTCT

16S26.1.edit

TCGAGCGGCCGCCCCGGCAGGTCCACCGGGATAATTGGGGGTCTGGCAGGAATGGGAGGC  
 ATCCAGAACGAGAAGGAGACCATGCAAAGCCTGAACGACCGCCTGGCTCTTACCTGGAC  
 AGAGTGAGGAGCCTGGAGACCGACAACCGAGGCTGGAGAGCAAAATCCGGGAGCACTT  
 GGAGAAGAAGGGACCCCAGGTCAAGAGACTGGAGCCATTACTCAAGATCATCGAGGACCT  
 GAGGGCTCANATCTCGAAATACTGCNGAGATGCCCG

16S26.2.edit

ATGCGNGGTGCGGGCCGANGACCANCTGGCTCATCTTGACTCTAAAGNCNTCACCAAG  
 NANTTACGGNCATTGCCAATCTGCAGACCGATGCCGGCATGTCTCCGANTATTGCGAAG  
 ATCTGACCCCTCAGGNCTCGATGATCTTGAAGTAANGGCTCAGTCTGACCTGGGTC  
 CCTTCTCTCCAAAGTGTCCCGGATTGTCTCTCCAGCCTCCGGTCTCGGTCTCCAAGNCT  
 TCTCACTCTGTCCAGGAAAGAGGCCAGCCGGNCATCAGGGCTTTGCATGGACT

16S27.1.edit

~~AGCGTGGTCGCGCCCCGACGTTTACAAACCTTTT~~

16S27.2.edit

TCGAGCGGCCGCCCCGGCAGGTCTGCCAACACCAAGATTGGCCCCCGCCGCATCCACACA  
 GTTNGTGTGCGGGGAGGTAAACAAGAAAACCGTGCCTGAGGNTGGACGNGGGAAATTTC  
 TCCTGGGCTCAGACTGTGTACTCGTAAACAAAGGATCATCGATGTGCTACAATCGAT  
 CTAATAACGAGCTGGTCTCGTACCAAGACCCCTGGTGAAGAATTGATCGTGTCAATNGACA  
 GCACACCGTACCGACAGTGGGTACCGAAGTCCCACATGCNCCT

*FIG. 15.44A*

## 16523.1.edit

TCGAGCGGCCGCCCCGGCAGGTCCACCAACCCATTCTTGGTATCATGGCAGCCGC  
 CACGTGCCAGGATTACCGGCTACATCATCAAGTATGAGAAGCCTGGTCTCTCCAGAGA  
 AGTGGTCCCTCGGCCCCGGCTGGTGTACAGAGGCTACTATTACTGGCCTGGAACCGGGAA  
 ACCGAATATAACAATTATGTCAATTGCCCTGAAG

## 16523.2.edit

AGCGTGNTNCGGCCGAGGATGGGGAAAGCTCGNCTGTCTTTTCTTCCAATCAGGGGCTN  
 NNTCTCTGATTATTCTTCAGGGCAANGACATAAAATTGTATATTGGNTCCCGGTCCAGN  
 CCAGTAATAGTAGCCTCTGTGACACCAGGGGGGGCGAGGGGACACTTCTGGGAGGA  
 GACCCAGGTTCTCATACTTGATGATGAACCCGGTAATCTGGCACGTGGGGGGCTGCCAT  
 GATACCAACCAANGAATTGGGTGTGGTGGACCTGGCCGGGGCGCTCGAAAANCCGAA  
 TTCTGCAAGAATATCCATCACACTGGGCGGGCGNTCGAACCATGATCNTAAAAGGG  
 CCCAATTCCCCCTATTAGCNGAAGCCNCATTAACAAATTCCACTTGG

## 16529.1.edit

TCGAGCGGCCGCCCCGGCAGGTCTCGGGTCGCACTGGTGTGCTGGTCTGTTGGTCCCC  
 CGGGCCCTCTGGACCTCTGGTCCCCCTCTCTCCAGCGCTGGTTTCGACTTCAGCTTC  
 CTGGCCCAGCCACCTCAAGAGAACGGCTACGATGGTGGCCGCTACTACCGGGCTGATGAT  
 GCCAATGTGGTTCTGACCGTGACCTCGACGTGGACACCAACCTCAAGAGCCTTGAGCCA  
 GCAGAATCGA.AACATTGGAAACCCAAAGAAGGGCAAGCCCGAAAGA.AACCCGGCCGC  
 ACCTGGCCGNGAACCTCCAAGAAGTCCCCACNTCTGACTGGGAAAGAAGGGAAAANT  
 ACTTGGAAATTGGAC

## 16529.2.edit

AGCGTGGTCCGGGGCGAGGTCCACATCGGAGGGTGGAGGCCATACTCGAA  
 CTGGAATCCATCGGTATGCTCTGGCGAACAGACATGCCCTTGTCTTGGGTTCTTGC  
 TGATGTACCAAGTCTTCTGGCCACACTGGCTGAGTGGGTACACCCAGGTCTCACCAAGT  
 CTCCATGTTGCAGAAGACTTTGATCCCACAGGTTGCAGCCTTGGTGGGTCAATCCAG  
 TACTCTCCACTCTTCCAGTCAGAAGTGGCACATCTGAGGTACCGGCAGGGTGCAGGGCGGG  
 GTTCTTGCAGGGCTGCCCTCTGGGCTCCCGGAATCTTCTNNGAACATTGGCTGG

## 16530.1.edit

ACCGTGGTCGCGGCCAGGTCCACTAGAGGTCTGTGCCATTGCCAGGCAGAGTCTCTG  
 CGTTACAAACTCCTAGGAGGGCTTGCTGTGCCAGGGCTGCTATGGTGTGCGGTTCA  
 TCATGGAGAGTGGGCCAAAGGCTGCGAGGTTGTGGTGTCTGGGAAACTCGAGGACAGA  
 GGGCTAAATCCATGAAGTTGTGGATGCCCTATGATCCACAGCGGAGACCTGTTAAGTA  
 CTACGTTGACACTTGCTGTGCCACGTGTTGCTCANACANGGTGGCTGGCATCAAG  
 GNG

## 16530.2.edit

TCGAGCGGCCGCCGGCAGGTCTGCCAAGGAGACCCCTGTTATGCTGTGGGACTGGCTG  
 GGGCATGGCAGGGCGCTGGCTTCCCACCTTCTGTTCTGAGATGGGGTGGTGGCAGT  
 ATCTCATTTGGGTTCCACAAATGCTCACGTGGTCAGGCAGGGCTTCTTAGGGCAATCT  
 TACCAAGTTGGTCCCAGGGCAGCATGATCTTACCTTGATGCCACACCCCTGCTGAG  
 CAACACGTGGCGCACAGCAAGTGTCAACGTAAAGTTAACAGGGCTCCGCTGGAT  
 CATCAGGCCATCCACAAACTCATGGATTTAACCTCTGCTCGGAG

## 16531.1.edit

TCGAGCGGCCGCCGGCAGGTCTTCAAGAGTCCAAGGTCCACTGTGGAGGTCCCAGG  
 AGTCTGGTGGTGGCCACAGAGTCGAATGGCTGAAACCATTGACATAGAGACTGTTCT  
 GTCCAGGGGTGAGGGCCCAGCTCTTGAATGCCATTGGCCAGTTGGCTCAGCTCCCAGTAC  
 AGCCGCTCTCTGAGTCAGGGCTTGGGCTCAAGATGATGGATGAGATGGCATCCA  
 CTCCAGTGGCTGCTCCATCCCTCGGACCTGAGAGAGGTCACTCTGCAGCCAGAGTACAG  
 AGGGCCAACACTGGTGTCTTGAATA

## 16531.2.edit

ACCGTGGTCGCGGCCAGGTCTGTACTGGAGCTAACCAAACGTGACCAATGACATTGAAG  
 AGCTGGGCCCTACACCCCTGGACAGGAACAGTCTCTATGTCATGGTTTACCCATCAGAG  
 CTCTGTGNCCACCAACCACCACTCTGGCACCTCAACAGTGGATTTCAGAACCTCAGGGACT  
 CCATCCTCCCTCCAGCCCCACAATTATGGCTGGCCCTCTCTGGTACCAATTCAACCC  
 CAACTCACCATACCAACCTGCACTATGGGGAGGACATGGGTACCCGTNCTCCAGGAA  
 GTTCAACACCACA

## 16532.1.edit

TCGAGCGGCCGCCGGACAGGTCTGGCGGATACCAACGGGCATATTGGAAATGGATGA  
 GGTCTGGCACCCCTGAGCAGTCCAGCGAGGACTTGGCTTAGTTGAGCAATTGGCTAGGAG  
 GATAGTATGCAAGCACGGNTCTGAGNCTGGGATAGCTGCCATGAAGTAACCTGAAGGAG  
 GTGCTGGCTGGTANGGGTTGATTACAGGGTTGGGAACAGCTCGTACACTTGCCATTCTCTG  
 CATATACTGGTTAGTGAGGTGAGCCTGGCCCTTTCTTTG

FIG. 15CCC

## 01\_16538.J.edit

AGCGTGGTCGCGGCCGAGGTGAGCCACAGGTGACCGGGCTGAAGCTGGGCTGCTGGNC  
CTGCTGGTCTG

## 02\_16538.L.edit

CAGCNGCTCCNACGGGGCCTGNGGGACCAACAACACCGTTTACCCCTAGGCCCTTGGC  
TCCCTTTCTCTTTAGCACCAGGTGACCAGCAGCNCCANCAGGACAGCAAATCCATTG  
GGCCAGCAGGACCGACCTCACCACTGTTCACCAAGGGCTTCCCCGAGGACCAAGGACCA  
GCAGGACCAAGCAGCCCCAGCTCGCCCCGGTACCTGTGGCTCACCTCGGCCGACCAAG  
CT

## 03\_16535.I.edit

TCGAGCGGTGCCCCGGGAGGTCCACCGGGATAGCCGGGGTCTGGCAGGAATGGGAGGC  
ATCCAGAACGAGAAGGAGACCATGAAAGCCTGAACGACCGCTGGCTCTTACCTGGAC  
AGAGTGAGGAGCCTGGAGACCGANAAACGGAGGGTGGANAGCAAATCCGGAGGACTT  
GGAGAAGAAGGGACCCCACGTCAGAGACTGGAGCCATTACTCAAGATCATCGAGGGA  
CTGGAGG

## 04\_16535.I.edit

AGCONGGTGCAGGGCCGAGGTCCAGCTCTGTCTCATACTTGACTCTAAAGTCATCAGCAGCA  
AGACGGGCATTCTCAATCTGCAGAACCGATGCCGCATTGTCGCAGTATTGGCAAGATCT  
GAGCCCTCAGGTCTCTCGATGATCTGAAGTAATGGCTCCAGTCTCTGACCTGGGTCCCTT  
CTTCTCCAAGTGTCTCCGGAAATTGCTCTCAGGCTCCGGTCTGGTCTCCAGGCTCCTCA  
CTCTGTCCAGGTAAAGAAGGCCAGGGGTCTGTTAGGCTTGCATGGTCTCCCTCTCGTTCT  
GGATGCCCTCCCAATTCCCTGCCAGACCC

## 05\_16536.I.edit

TCGAGCGGCCGCCCCGGGAGGTCAAGGAACCAATTGGTCTTAGAGGCCACTGCCCTGG  
TTCCACCTGTGCTGCGGACATCTCCAGGGAGTGCAGAACGGGAAGCAGGTCAAATGCTCA  
GATCAGTCAGACTGGCTGTTCTCAGTTCTCACCTGAGCAAGGTCAAGTCTGCAGCCAGAGTA  
CAGAGGGCCAACACTGGTGTCTTGAACAAAGGGCTTGAGCAGACCCCTGCAGAACCCCTTC  
CGTGGTGTCAACTTCTGGAAACCAAGGGTGTGCAATGTTTCTCTATAATGCAAGGTTG  
GTGATGG

*FIG. 15DDD*

07\_16537.1.edit

AGCGTGGTCGGGCCGAGGTCCACATCGGAGGGTCGGAGGCCCTGGCCGCATACTCGAA  
CTGGAATCCATCGGTATGCTCTGCCGAACCAGACATGCCCTTGCTCTGGGTTCTGCTG  
TGATGTACCACTCTTCTGGGCCACACTGGGCTGAGTGGGTAACCCGAGGTCTCACCAG  
TCTCCATGTTGAGAAGACTTGTGGCATCCAGGTTGCAGCCTGGTTGGGTCAATCCA  
GTACTCTCCACTTCCAGTCAGAAGTGGGCACATCTGAGGTACCCGCAGGTGCCGGC  
CGGGGGTTCTGCGCTTGCCTCTGGCTCCGAATGTTCTCGATCTGCTGGCTAGGCTC  
TTGAGGGTGGGTGTCCACCTCGAGGTACGGTCACCGAAACCTGCCCCGGCGCCGCTC  
GA

08\_16537.2.edit

TCGAGCGGTCCCGGGCAGGTTCTGACCGTGACCTCGAGGTGGACACCACCTCAAG  
AGCTGAGCCAGCAGATCGAGAACATCCGGAGCCCAGAGGGCAGCCCAAGAACCCGC  
CCGCACCTGCCGTGACCTCAAGATGTGCCACTTGACTGGAAGAGTGGAGAGTACTGGAT  
TGACCCCAACCAAGGCTGCAACCTGGATGCCATCAAAGTCTCTGCAACATGGAGACTGGT  
GAGACCTGCGTGTACCCCACCTCAGCCCAGTGTGGGCCAGAAGAAACTGGTACATCAGCA  
AGGAACCCCAGGACAAGAGGATTGTCTGGTCCGGGAGNAGCATGACCCGATGGATT  
CCAGTTGAGTATTGGCGGCCAGGGCTTCCGACCCCTTGCCGATGTGACCTCGGCCGCG  
ACCAACCGCT

*FIG. 15EEE*

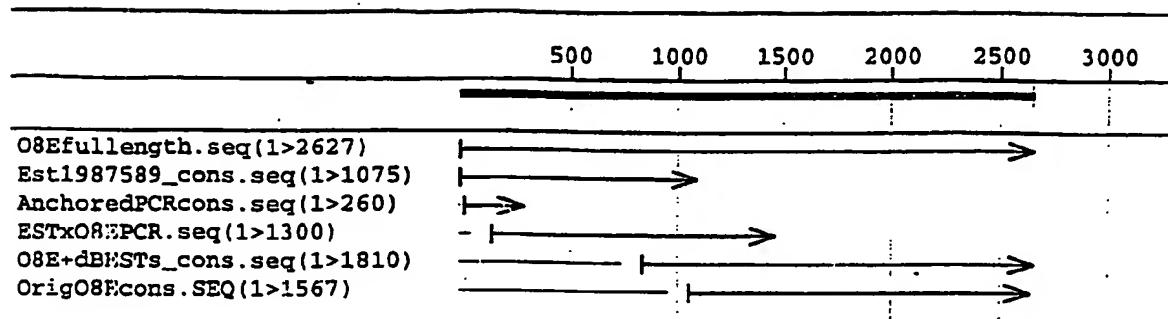


FIG. 16